University of Alberta

Navigating the Network of Recording Practice — Towards an Ecology of The Record Medium.

by

Jay Alan Hodgson

©

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DEDICATION

This dissertation is dedicated to two people. First, and foremost, this dissertation is dedicated to my wife, Eva, without whom I could never have written this. Second, I dedicate this dissertation to my sister, Corrina, for the hours of conversation, and her endless patience in withstanding my diatribes about media theory, as I wrote. I am forever in your debts.

ABSTRACT

Beginning from the proposition that, in Marshall McLuhan's words, "the medium is the message," and assuming that each medium ultimately constitutes a human-built environment, I study, chart the contours, and theorize, the musical and social precedents/consequences of the "environment" of the Network of Recording Practice — which is what I call the "communications system" of making and hearing music recordings — as a musical interpellation of the industrial procedure of transduction. Working with media ecologists such as Harold Adams Innis, (especially) Marshall McLuhan and Neil Postman, and defending their work against charges of "technological determinism" and "theoretical totalitarianism," which are currently leveled as a matter of course by many analysts of Recording Practice, I ultimately outline and elucidate a structure for Recording Practice, specifically, a "small-world" network structure. I conclude that Recording Practice finally constitutes nothing less than a constituent method of the capitalist mode of production, which demands the aggressive deletion of human specificity in all the musical communications that it enables.

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TABLE OF CONTENTS

Introduction.....1

What Is A Music Recording?
Poststructuralism, Media Ecology & the Network of Recording Practice.....23

What Is Sound Reproduction Technology?
McLuhan, Determinism, Transduction & Recording Practice.....87

What Is A Mix?
The "Content" of the Network of Recording Practice.....168

The "Message" of the Network of Recording Practice
Stricture, Deterrence, Technocracy.....234

Bibliography.....273

LIST OF TABLES, FIGURES AND CAPTIONS

TABLES

1. Pink Floyd's "Speak To Me" (1973), divided into three sections, with significant sound events noted.....192

2. Edit slate for Miles Davis's "Pharaoh's Dance" (1969), noting all splices.....219

FIGURES AND CAPTIONS

Figure 1. An acoustic recording session, *ca.* 1921.....7

Figure 2. "Which is Which?" Victor Talking Machine Company Advertisment, 1904, Archives Center, National Museum of American History, Smithsonian.....60

Figure 3. "Which Is Which?" Victor Talking Machine Company Advertisment, 1908, Archives Center, National Museum of American History, Smithsonian 61

Figure 4. "What A Loss" Victor Talking Machine Company Advertisment, 1912, Archives Center, National Museum of American History, Smithsonian.....62

Figure 5. "The Opera Season Closes..." Victor Talking Machine Company Advertisment, 1910, Archives Center, National Museum of American History, Smithsonian.....63

Figure 6. "Hear Blanche Ring" Victor Talking Machine Company Advertisment, 1913, Archives Center, National Museum of American History, Smithsonian.....64

Figure 7. "Geraldine Farrar" Victor Talking Machine Company Advertisment, 1914, Archives Center, National Museum of American History, Smithsonian.....65

Figure 8. Diagrammatic rendering of the ontic relation between prototype and multiple instance in Recording Practice.....73

Figure 9. Diagrammatic rendering of the ontic relation between record reception, multiple instance and prototype in Recording Practice.....75

Figure 10. Diagrammatic rendering of the ontic relation between prototype and multiple instance in Recording Practice, where there are both multiple instances made directly from the prototype and multiple instances made from multiple instances.....76

Figure 11. The manufactured "lack" in compact disc (digital) generations of sound reproduction technology, from www.rentacenter.com/Category/stereos.jpg.....82

Figure 12. A "small-world" network, adapted from Strogatts and Watts (1998).....165

Figure 13. Visual Rendering of the Mix for The Beatles' "Can't Buy Me Love" (1964).....175

Figure 14. Position of Mixing In Relation To Microphone Positioning.....180

Figure 15. A Mixing Board.....186

Figure 16. Effects "sending" and "returning".....189

Figure 17. Horizontal Plane.....196

Figure 18. Horizaontal Span.....197

Figure 19. Proximity Plane.....198

Figure 20. Vertical Plane.....200

Figure 21. Mix Compass for Miles Davis' "Nefertiti" (1967).....215

Figure 22. Stage Positions of the Miles Davis Quintet.....216

Figure 23. Mix Compass for Miles Davis' "Pharaoh's Dance" (1969).....221

Figure 24. Mix Compass for Miles Davis' "Pharaoh's Dance" (1969).....222

Introduction

"No sufficiently powerful record player can be perfect, in the sense of being able to reproduce every possible sound from a record" (Hofstadter 1979, 86). If the right frequency sounds, the record player automatically self-destructs.

Sculptures.

For this dissertation, "music" is defined as "sculpted matter." Making and hearing "music," no matter how variously this is done, is always, fundamentally, sculpting matter and hearing sculpted matter. That is, sculpting matter, and noting sculpted matter, is the substantive basis of all musical practice, the very same thing that people who make and hear "music" do, no matter how variously they do so.

To sculpt matter into "music," or, to *make* "music," one must take recourse to either (i) their bodies (as vocalists do) or (ii) certain "tools" which they consider to be, or which they think might be, appropriate for making music (these "tools" are often referred to as "musical instruments"). To note a "musical" sculpture, or, to *hear* "music," one must situate oneself within earshot of a "musical" sculpture. "Music," as a genre of human communications, is a product of these two related, seemingly simple acts.

Until June of 1877, when Thomas Alva Edison finished work on his prototype for the phonograph, there was only one kind of matter which could be sculpted into "music," namely, sonic phenomenon, or, acoustic energy. Before the phonograph, "musicians" were people who took recourse to their bodies or musical "instruments" to sculpt acoustic energy into what they thought were genuinely, or even just potentially, "musical" shapes; "listeners" were people who situated themselves within earshot of the sculptures of acoustic energy which "musicians" made. This necessarily occurred

over a finite span of time, and within one particular geographic location. This is what I call "Live" or "Concert" musical exchange.

Edison's phonograph changed all this, of course. Rather than a "tool" for sculpting acoustic energy — that is, for *producing* sound — the phonograph works to *reproduce* already sculpted acoustic energy. As such, it is a "sound reproduction technology." The phonograph "does not hear as do ears that have been trained immediately to filter voices, words, and sounds out of noise; it registers acoustic events as such" (Kittler 1999, 23). Indeed,

> Upon speaking into a phonograph, the vibrations of one's voice are transferred to a point that engraves lines onto a metal plate that correspond to the uttered sounds — uneven furrows, more or less deep, depending on the nature of the sounds.... [W]hen the phonograph's small copper disk, held against the pin that runs through the grooves it has etched, starts to reproduce the vibrations: to our ears, these vibrations turn back into a voice, into words, sounds, and melodies (Kittler 1999, 31).

Like every sound reproduction technology, the phonograph's primary agency is to convert one kind of energy into another, a technique which is known as "*transduction.*" The phonograph registers sculptures of acoustic energy, converts or "*transduces*" the sculptures it registers into equivalent sculptures of mechanical energy — which is to say, bigger or smaller bumps and pits on a tinfoil or wax cylinder — which the phonograph then registers and converts or "*transduces*" into equivalent sculptures of acoustic energy. As Jonathan Sterne explains:

> Modern technologies of sound reproduction use devices called *transducers*, which turn sound into something else and that something else back into sound. All sound reproduction technologies work through the use of transducers. Telephones turn your voice into electricity, sending it down a phone line and turning it back into sound at the other end. Radio works on a similar principle

> but uses waves instead of wires. The diaphragm and stylus of a cylinder phonograph change sound through a process of inscription in tinfoil, wax, or any number of other surfaces. On playback, the stylus and diaphragm transduce the inscriptions back into sound. Digital sound reproduction technologies all use transducers; they simply add another level of information, converting electric current into a series of zeros and ones (and back again) (Sterne 2003a, 22).

Edison is "the father of modernity," as Kittler (1999) claims. His kinetoscope provided the technical basis for cinema. His phonograph was the first "tool" for doing another kind of musical communication than is done by "Live" or "Concert" exchange: making and hearing music recordings. I call the latter "*Recording Practice*," and I treat it as a fully integrated — which is to say, a completely autonomous or self-sufficient — communications system. I argue, in fact, that Recording Practice is as distinct from "Live" or "Concert" exchange as writing is from speaking; that the dynamics which govern Recording Practice are entirely different from those which govern "Live" or "Concert" exchange.

In Recording Practice, beyond acoustic energy, there is also mechanical, electric, electromagnetic and digital energy to sculpt. Humanity simply lacks the physical resources to sculpt these energies. To transduce acoustic energy into another kind of energy — to convert sculptures of acoustic energy into sculptures of, say, mechanical, electric, electromagnetic or digital energy — and, in so doing, to *make* a music recording, one must use a transducer(s) which converts sculptures of acoustic energy into sculptures of mechanical, electric, electromagnetic or digital energy. Conversely, anyone who *hears* such a recording must use a transducer(s) which converts sculptures of mechanical, electric, electromagnetic or digital energy into sculptures of acoustic energy.

Recording Practice *is* transducing, just as it is a manner of considering transduction musically useful — no more, no less. At the same time, Recording Practice is using sound reproduction technology for musical purposes — no more, no less.

The Network of Recording Practice.

Recording Practice is a fully integrated network of uses for sound reproduction technology. It is, in other words, a complete or self-sufficient system of "procedures, practices, relations and technologies" which relates to "Live" or "Concert" exchange only in that both furnish what is currently considered a properly "musical" experience (Sterne 2003a, 22). The "*Network of Recording Practice*" — that is, the "communications system" of Recording Practice in its totality — is, ultimately, nothing more than "a collection of objects connected to each other in some fashion," specifically, all the world's sound reproduction technologies associated by Recording Practice (Watts 2003, 27).

In the parlance of network theory, Recording Practice is the dynamics <u>on</u> the Network of Recording Practice. That is, making and hearing music recordings is what individuals in the Network are doing, "which is influenced by what their neighbors are doing and, therefore, the structure of the network" (Watts 2003, 57). Sound reproduction technology itself is the dynamics <u>of</u> the Network of Recording Practice. That is, the capacities of sound reproduction technology are "the evolving structure of the network," "the making and breaking of network ties" (Watts 2003, 57).

The dynamics <u>on</u> and <u>of</u> the Network of Recording Practice are what distinguishes Recording Practice from other musical networks. *One simply cannot make a*

music recording except by using sound reproduction technology. Music recordings remain silent unless embedded within a compatible system of sound reproduction technology which is then used for purposes of record reception. These are the governing dynamics of Recording Practice. They create, and exist nowhere but within, the Network of Recording Practice.

"Nodes": Tracking, Mixing, Playback.

The Network of Recording Practice is "a fixed substrate linking a population of individuals" for purposes of "doing" — or, for purposes of carrying out — musical communications of a sort (Watts 2003, 55). The royal road to understanding what the Network of Recording Practice achieves is to mark how it mandates that its denizens exploit sound reproduction technology whenever they make and/or mark a musical communication.

It has been the task of "*record innovators*" and "*record receivers*" — respectively: those who make, and those who receive, music recordings — to devise properly "musical" uses for sound reproduction technology. This dissertation explores each of these procedures in depth. For now, it will suffice to simply list and inventory the broad characteristics of those three "musical" uses for sound reproduction technology which together comprise the essential or necessary "*nodes*" of the Network of Recording Practice: "tracking," "mixing" and "playback."

Tracking. Using transducers, record innovators procure "storage-state" data (i.e., sculptures of mechanical, electric, electromagnetic or digital energy which represent sculptures of acoustic energy). Or, they procure and further sculpt already manufactured "storage-state" data, as is the case with DJs, for instance.

Once procured, "storage-state" data can be sculpted to represent different sonic phenomenon than created it. What was transduced as a "clean" guitar timbre can be augmented by postproduction sound processes such as, say, flange and/or digital delay, and looped to repeat every ten seconds. The "clean" guitar timbre is thus irrevocably altered such that it transduces as it never actually sounded, such that it represents something it never was. It is only a matter of convention and choice whether or not such manipulations occur.

Tracking is ultimately *making* "storage-state" data, not "capturing" or "freezing" sonic phenomena onto some kind of "storage" media. Everything done to procure and figure "storage-state" data for purposes of making a music recording occurs as part of "tracking."

Mixing. All the "storage-state" data which is made through tracking, which will comprise a music recording in its entirety, is arranged into an idealized, three-dimensional representation of itself during mixing. That is, "storage-state" data is mixed by record innovators such that it will form a spatial arrangement of sonic phenomena during and by record reception which it never actually formed.

Every music recording is mixed. At the very least, every music recording *presents* its receivers with a mix. This is so regardless of whether or not record innovators intentionally undertake a mixing process, because every collection of "storage-state" data transduces as sonic phenomenon in three dimensional space relative to transducers.

Indeed, even the earliest varieties of acoustic record innovation involved a mixing process of sorts. During tracking, innovators of so-called "acoustic" music recordings arranged themselves into often awkward formations around the recording bells of mechanical sound reproduction technologies to ensure that the "storage-state" data (specifically, the sculptures of mechanical energy) they made would transduce to record receivers from the aural perspective of a generally desirable "mix." (See Figure 1). Only with the advent of multitrack mixing machines have such arrangements become unnecessary for spatializing "storage-state" data. Record innovators now mix their music recordings using certain technologies such as mixing consoles, potentiometers, etcetera.

Figure 1. An acoustic recording session, *ca.* 1921. Note the recording bells, and the cellist elevated on a platform to shoulder level, "over and above" her colleagues.

Every mix ultimately operationalizes a particular way of hearing. When transduced, a mix presents sonic phenomenon no other way but as it "hears" it (i.e., arranged in time and space somehow). Thereby, every mix recommends the aural perspective it construes to record receivers as the most appropriate, if not the only conceivable, given what it "hears." In so doing, every mix supposes and constructs a receiver, regardless of who — or, even, whether or not *anybody* — actually transduces the music recording which stores it.

A mix could, after all, *never* be transduced. A mix could, that is, *never* exist as sound. A mix must thus be an aural perspective to sound, not sonic phenomena as such.

Playback. Once mixing is finished, the *sound* of the mixed "storage-state" data becomes the purview of record receivers. In fact, once record innovation is complete, record innovators become consumers (i.e., record receivers) of their own innovations. They are afforded no means of continuing their innovation by the Network of Recording Practice.

By transducing "storage-state" data into corresponding sculptures of acoustic energy, record receivers *realize* the particular sound(s) which record innovators sculpted the "storage-state" data to represent. At the same time, record receivers also make a particular space — i.e., a specific site of record reception — which remains contradictorily abstract enough to withstand transduction wherever a transducer happensto be. The musical labour of record receivers is thus to realize a materiality (i.e., sculptures of acoustic energy) which record innovators can only represent, specifically, as "storage-state" data (i.e.,

as representative sculptures of mechanical, electric, electromagnetic or digital energy). This materiality remains at all times both specific *and* standard, particular *and* general.

Discourse Network.

A series of interconnected uses for sound reproduction technology, the Network of Recording Practice bears marked corollaries with what Friedrich Kittler deems a "discourse network" (Kittler 1990).[1] First and foremost, a "discourse network" constitutes an "automatic and impersonal notation system that depends upon no single individual and articulates several discourses into a single.... network" (Johnson 1997, 9). Thereby, it constitutes "a system for authorizing certain subjects as senders and others as receivers," but only of particular kinds of "information" — namely, with the Network of Recording Practice, sculptures of "storage-state" data which represent as they are represented by sculptures of acoustic energy (Johnson 1997, 10).

To access the Network of Recording Practice, people *must* assume certain prescribed positions therein such as, for instance, that of the "record innovator" and that of the "record receiver." These titles designate consumers of sound reproduction technology before and while they designate anything "musical" (in the traditional or "Live"/"Concert" sense). That is, a "record innovator" is someone who uses sound

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[1] Though Kittler's discourse network is an amalgam of discourses, distilled into a broader system which works to authorize some communications as "informative" and others as "noise" (in the Shannon-Weaver sense), the Network of Recording Practice is localized entirely around transducers and transduction. That is, what "authorizes" communications as "informative" in the Network of Recording Practice is the *fact* that they are comprised entirely of transduced/transduceable information.

reproduction technology (to sculpt mechanical, electric, electromagnetic and/or digital energy); a "record receiver" is someone who uses sound reproduction technology (to transduce the sculptures of mechanical, electric, electromagnetic or digital energy which record innovators make into corresponding sculptures of acoustic energy). *What actually "authorizes" people as "senders" and/or "receivers" of musical communications in the Network of Recording Practice are their consumptions of sound reproduction technology.*

Indeed, all that matters to the orderly operation of the Network of Recording Practice is that the requirements of "record innovation" and, less crucial, "record reception" are met. For Recording Practice to happen, a music recording must be made and, less crucially, heard. It doesn't matter who exactly innovates or receives the recording — the gender, physiology and ethnicity of record innovators and record receivers is utterly irrelevant to the "automatic and impersonal" Network of Recording Practice — just that "record innovation" and, less crucial, that "record reception" occurs.

The technology of a CD alarm-clock demonstrates this. Regardless of who is within its earshot at 12:30 am, a CD alarm clock which has been programmed to transduce at that time will transduce then. Record reception transpires at exactly 12:30 am, regardless of who — or, even, whether or not *anybody* — is present to participate.

Programmers.

People are functional within the Network of Recording Practice only as programmers of sound reproduction technology. Record innovators, whoever they may be, use sound reproduction technology to make yet more generations of sound

reproduction technology (i.e., music recordings). Record receivers, whoever they may be, hear "music" only once the "play" button, or some equivalent, is depressed. And only if the machine is in proper working order. Or, record receivers, whoever they may be, program their stereo alarm clocks wrong and a musical communication transpires precisely when they want silence (while they sleep, for instance); or, they depress the "play" button, or some equivalent, and nothing happens because the speakers are broken and the machine is not adequately powered.

In each of these cases, the governing dynamics of the Network of Recording Practice are clear: people, whoever they may be, are utterly incompetent to engage in Recording Practice. Sound reproduction technology is required to "correct" their insufficiencies. If the machine fails, Recording Practice fails. People, whoever they may be, remain always, basically, participating witnesses in Recording Practice.

"Romanticism notwithstanding, numbers and figures" have "become the key to all creatures" (Kittler 1999, 19). A total disregard for human specificity constitutes the basic principle of the Network of Recording Practice. Recording Practice is musical experience, initially a human affair, approximated and rendered as a data processing system: as buttons on machines, and the machines themselves; as sculptures of mechanical, electric, electromagnetic and digital energy; as sculptures of acoustic energy which represent as they are represented by sculptures of mechanical, electric, electromagnetic and digital energy. Musical communication, a category of human experience, is thus fettered to the capacities of sound reproduction technology. And "musical practice" becomes, in turn, a function of sound reproduction technology, of "doing" musical communications however transducers can. Which is to say, "musical practice" becomes, fundamentally, programming sound reproduction technology.

The Flat Earth Approach.

Musicology proceeds *stubbornly* unaware of any of this.[2] Recordings are discussed and studied as prosthetics of "Live" exchange. Making a music recording is *adapting* "Live" exchange to what amounts to a new mode of transmission; hearing a music recording is *adapting* "Live" exchange to what amounts to a new mode of reception. Little else has changed. As a senior professor once said, after I presented to him every reason I could think of why Recording Practice is unique, "Yes, but it's *still* music." If Recording Practice is *still* music: cinema is *still* plays, broadcasting is *still* public address, typographic print is *still* speech, and I am speaking to you right now. As McLuhan wrote:

> Until now, all media have been given the flat earth approach. To common sense the earth is flat. To private, unaided perception, it must always seem flat.

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[2] There are, of course, a handful of exceptions. I list them here as the primary inspiration of this dissertation. In order of my reading: Marshall McLuhan, "The Phonograph: the Toy that Shrank the National Chest," *Understanding Media: The Extensions of Man*. (New York: Routledge, 1964), pp. 300-309; Friedrich A. Kittler, *Gramophone, Film, Typewriter: Writing Science*, translated and with an introduction by Geoffrey Winthrop-Young and Michael Wutz, eds. Timothy Lenoir and Hans Ulrich Gumbrecht. (Stanford: Stanford University Press, 1999); Jonathan Sterne, *Audible Past: the Cultural Origins of Sound Reproduction* (Durham: Duke University Press, 2003a); Paul Théberge, *Any Sound You Can Imagine: Making Music/Consuming Technology*. (Hanover: Wesleyan University Press, 1997); Paul Théberge, "Technology," *Key Terms in Popular Music and Culture*, eds. Bruce Horner and Thomas Swiss. (Malden: Blackwell Publishers, 2001), pp. 209-224; Albin J. Zak III, *The Poetics of Rock: Cutting Tracks, Making Records*. (Berkeley: University of California Press, 2001); Adam Krims, "Marxism, Urban Geography and Classical Recording: An Alternative to Cultural Studies," *Music Analysis* Volume 20 Number 3 (2001): 347-363; Mark Coleman, *Playback: From the Victrola to MP3, 100 Years of Music, Machines and Money*. (New York: Da Capo Press, 2003); Evan Eisenberg, *The Recording Angel: Music, Records and Culture from Aristotle to Zappa*. (New Haven: Yale University Press, 1987).

> Media of all kinds exert no effect on ordinary perception. They merely serve human ends (like chairs!) and convey data, etc. But macroscopically, the content fades and the medium itself looms large, as does the earth to an astronaut (McLuhan 1969, 22).

Musicologists must at least *begin* to engage with the work of media theorists such as Marshall McLuhan, to get a grip on a medium which seems to continually elude their analytic grasp, namely, the sound reproduction medium. Without a theory of this medium, what in the first instance *enables* Recording Practice remains either overlooked or reduced to inefficacy in the very activities it enables. Simply put, it is the techniques which media objectify — literally, make manipulatable objects of — that first require analysts's attentions, not the "contents" which those techniques enable.

Analysts of Recording Practice typically overlook this. The vast majority of commentary on Recording Practice *still* focuses only on the sound of music recordings, and on how people think about and react to that sound. The product of a process is thereby mistaken for the process itself.

Media Ecology, Stupid Fish.

Ultimately, the Network of Recording Practice constitutes "an invisible environment.... as imperceptible as water to a fish" (McLuhan 1969, 23). As such, it deserves scrutiny under the auspices of "media ecology." In Neil Postman's words, "specifically, the purpose of media ecology is to tell stories about the consequences of technology; to tell how media environments create contexts that may change the way we think or organize our social life, or make us better or worse, or smarter or dumber, or freer or more enslaved" (Postman 1988, 18). Thus, unlike other interpretive modes, media ecology assumes *a priori* that:

> media change is ecological, not additive.... [W]hen a powerful new medium like television enters a culture, the result is not the old culture *plus* the new medium, but a new culture altogether. The effect is similar to what happens if you add a drop of red dye to a beaker of clear water: you end up with a new color throughout (Postman 1988, 66).

This is an unorthodox view even four decades after Marshall McLuhan first argued it, in 1962.[3] Media are still not often understood as having environmental impacts. Such impacts remain "invisible" to many, "as imperceptible as water to a fish." Perhaps, though, this is so not because we are all more or less stupid fish (though this remains a distinct possibility), but because the environmental impacts of media only obtain whenever and wherever people engage in activities other than consciously scrutinizing the environmental impacts of what they do, such as, for instance, when and where they make or hear a music recording. As Postman explains, "we speak about television as if television has merely been added to [culture] and little else has changed" (Postman 1988, 66). Indeed, people watch television but "they do not yet watch themselves watch it" (Postman 1988, 66).

The notion that each medium constitutes a human-built environment is invaluable. How McLuhan sees this happen is even more helpful. Each medium "amplifies" only certain senses precisely as it "amputates" only certain others,

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[3] Specifically, in his introduction to *The Gutenberg Galaxy* (1962): "Any technology tends to create a new human environment. Script and papyrus created the social environment we think of in connection with the empires of the ancient world. The stirrup and wheel created unique environments of enormous scope. Technological environments are not merely passive containers of people but are active processes that reshape people and other technologies alike," in Marshall McLuhan, *The Gutenberg Galaxy: the Making of Typographic Man*. (Toronto: University of Toronto Press, 1962), *i*.

according to McLuhan. Typographic print, for instance, "amplifies" the eye to the point of ocularcentrism, which is an always happening "amputation" of the voice and ear that makes of the world something which must exist as massively reproduced, or massively reproducible, sculptures of visual code to be believed. In doing this, typographic print makes a claim as to what is knowable and unknowable about the world by it, as does any medium. The world, according to typographic print, is all that can be represented by massively reproduced, or massively reproducible, sculptures of visual code.

The environments which media construe are each, ultimately, a kind of *operational* epistemology; they are, each, "a physical environment and a manner of perceiving that environment" (Thompson 2003, 1). In which case, media are, each, prescribed manners of perceiving and, so, of interacting with worlds that they, themselves, create through their "sensory privileges." Those avenues of communication with which each medium furnishes its users comprise *streamlined* avenues of apperception. Media are, each, a *directed* manner of perceiving and, thus, of producing only one among many possible worlds.

Technological Determinism.

In neglecting the sound reproduction medium, let alone its environmental impacts, analysts of Recording Practice would seem to demonstrate McLuhan's claim concerning fish, water and the rest of us (not to mention that he failed in his crusade to shake students of media awake from their "critical somnambulism"). For the most part, analysts *still* take Recording Practice as only an adjunct of "Live"/"Concert" musical practice, as though making and hearing music recordings were only

comprehensible within the framework of "Live"/"Concert" exchange. Caution is often offered to anyone who might argue otherwise and, supposedly thereby, slip into, as Jonathan Sterne claims, "deification of technology.... [by] technological determinism" (Sterne 2003a, 7-8). But no explanation is offered — worse yet, none is considered necessary — as to why any argument which may be identified as "technologically determined," even if only tenuously, is therefore "deifying" of technology and thereby falsified.

This is simply irresponsible to my mind. Disagreement with the notion that, as McLuhan claimed, "the medium is the message," obliges evaluators to explain what exactly they think a medium is or does instead. Commentators agree that such a thing as the "media" exists, after all. They simply complain that (so-denounced) "technological determinism" garners for it an exaggerated social efficacy. This makes "technological determinists" of everyone.

The contradiction runs as follows: (i) "technological determinism" garners social efficacy for technology; (ii) to claim that "technological determinism" is false, unworthy of consideration except as false, one must claim that technology bears no social efficacy; (iii) to claim that technology bears no social efficacy, one must claim that technology is neutral, always only "instruments to an end," as it were; (iv) "instruments to an end," in order to be "instruments to an end," must configure human will as a state of worldly affairs; (v) as "instruments to an end," technology bears the social efficacy of its users; thus, (vi) technology bears social efficacy, even if only as an archetypical prosthetic of sorts.

Prescription for Discourse.

Recording Practice is, in its entirety, a *product* of transduction. All of its social impacts are impacts of transduction and, thus, of transducers. Again, Recording Practice is transducing, just as it is a manner of considering transduction musically useful — no more, no less. In which case, Recording Practice is using sound reproduction technology for musical purposes — no more, no less.

Communications occurring within and by the Network of Recording Practice interpellate — that is, they assign musical identity to — transduction as not only one among many musical techniques, but as the *only* such technique. One must communicate however sound reproduction technology enables to engage in Recording Practice. Whatever people say or hear by Recording Practice is only possible if sound reproduction technology can do it first. Consequently, as Steven Shaviro explains, "no matter what position you seek, that position will be located somewhere on the Network's grid[;] no matter what words you utter, those words will have been anticipated somewhere in the chains of discourse" (Shaviro 2004, 4-5).

Ultimately, the Network of Recording Practice constitutes a prescription for discourse. Discursive agency is prescribed in Recording Practice according to what sound reproduction technology enables, which is to say, discourse becomes only what can be said or received by exploiting a transducer. Thus, discourse is prescribed. Unless one does the impossible and undertakes Recording Practice without using sound reproduction technology, without transducing, one does something which technology itself prescribes. The limits of Recording Practice are the limits of sound reproduction technology, the limits of what sound reproduction technology can be made to do.

Navigating the Network: The Broad View.

The task is likewise double for analysts of Recording Practice as it was for the likes of McLuhan, Harold Adams Innis, Neil Postman and anyone else whose work on the media might be considered a genuine media ecology.[4] Analysts must study the Network of Recording Practice as a specifically musical network, while they study it as a musical interpellation of — that is, as an assignment of musical identity to — the industrial technique of transduction. Analysts must, in other words, *constantly* remind themselves that the Network of Recording Practice is, was and always will be constituted by creative use of transducers. To understand this is to hear "the circuits in the synthesized sound of CDs," to hear the underlying sameness of every recorded communication, to see the underlying sameness of every discursive behavior enabled by sound reproduction technology (Kittler 1999, *xli*).

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[4] See, for instance, Marshall McLuhan, *The Gutenberg Galaxy: the Making of Typographic Man.* (Toronto: University of Toronto Press, 1962); Marshall McLuhan, *Understanding Media: the Extensions of Man.* (New York: Routledge, 1964); Marshall McLuhan, *The Medium is the MASSAGE: An Inventory of Effects*, produced by Jerome Angel. (New York: Penguin Books, 1967); Marshall McLuhan and Quentin Fiore, *War and Peace in the Global Village: An Inventory of Some of the Current Spastic Situations That Could Be Eliminated by More Feedforward*, produced by Jerome Angel. (New York: Penguin Books, 1968); Marshall McLuhan and Eric McLuhan, *Laws of Media: the New Science.* (Toronto: University of Toronto Press, 1988); Harold Adams Innis, *Empire and Communications.* (Toronto: University of Toronto Press, 1951); Harold Adams Innis, *The Bias of Communication.* (Toronto: University of Toronto Press, 1951); Neil Postman, *Amusing Ourselves To Death: Public Discourse in the Age of Show Business.* (New York: Penguin Books, 1985); Neil Postman, *Conscientious Objections: Stirring Up Trouble About Language, Technology and Education.* (New York: Penguin Books, 1988); Neil Postman and Steve Powers, *How To Watch TV News.* (New York: Penguin Books, 1992); Neil Postman, *Technopoly: The Surrender of Culture to Technology.* (New York: Vintage Books, 1993); Neil Postman, *Building A Bridge to the 18th Century: How the Past Can Improve Our Future.* (New York: Vintage Books, 1999).

Analysts of Recording Practice must render the sound reproduction medium less transparent, if not *opaque*. This is the only truly significant task of analysis.

A Final Note.

I should state upfront that this study has led me to a rather awkward and uncomfortable conclusion. In this dissertation, I argue that the Network of Recording Practice constitutes a *lived* dialectic between humanity and a particular kind of communications machine. To my mind, this dialectic has spawned a particular way of communicating (i.e., Recording Practice) which has very little use nor regard for human specificity. I stop just short of claiming human specificity altogether absent from the Network, though I do clarify that the tendency to eradicate human distinctions from musical communications is not only embedded within the Network of Recording Practice, but constitutes one of its primary "rules" of operation.[5]

Indeed, the Network of Recording Practice *mandates* that people fulfill certain requirements before entering it. These requirements simply must be met before anyone can "do" a musical communication in that socially pervasive manner which only the Network of Recording Practice enables. One of these requirements is that communicators make themselves fundamentally likewise to everyone else who

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[5] That is, I argue that sound reproduction technology not only tends towards but has already enacted (i) transformative, (ii) radical and (iii) subject negation with regards to its Other, namely, humanity; that Recording Practice is *already* (i) "a process of mediating, distancing or absenting" which involves (ii) "the autonomous subversion, transformation and overcoming of a being or condition," which is (iii) "the subject in the process of formation or dissolution" (Bhaskar 1993, 5-7).

communicates by the Network, specifically, by manipulating and thereby consuming personal generations of sound reproduction technology. To make or listen to a music recording, one must consume sound reproduction technology — one must make of one's Self a kind of consumer.

Such requirements also constitute prerequisites for being heard by a large group of people. Through these prerequisites, the Network of Recording Practice *secures* the social acceptability of whatever it is exploited to say. Anything which enters the Network already meets its terms, in other words. I therefore offer no alternative to the Network, no way of "beating the system." There is none. One may only reject the Network, though one must be careful that one is not thereby "managed" as would occur if their rejection was anticipated by the Network, folded into its operations, from the first.

This is a difficult conclusion for me to reach. Lest you doubt my sincerity, I have been and remain a record innovator (albeit of admittedly awful music recordings), have helped design and build a recording studio, I currently work as a DJ with a partner in Brooklyn, and have sung the praises of Recording Practice often throughout my career as a graduate student. However, for me to offer any other conclusion would entail making a series of dogmatic proclamations about humanity's primacy in the dialectic it has been engaged in with its technology since at least the time of the wheel. In which case, my inquiry would fall under the purview of theology, which, as much as it may disappoint my mother, I claim to know nothing about, and about which I claim to say nothing.

In the end, I see no alternative to the sublation under technology of human specificity in musical communications which the Network of Recording Practice achieves but to somehow avoid rather than to be excluded by it. Some may claim that

this makes me a Luddite. Worse for my future job prospects, they may call me a "technological determinist." I may even be labeled a "coward," since I advocate evasion rather than direct confrontation. I would counter with a response by Terry Eagleton:

> What this fails to see is that reflecting critically on our situation is part of our situation. It is a feature of the peculiar way we belong to the world (Eagleton 2003, 60).

Thus, I finally offer my inquiry into the Network of Recording Practice as an artifact of that culture in which it currently enacts its most obvious social efficacies — Western capitalism — in this case meant to keep in accordance with that tradition of cultural commentary which sees culture as something human-built and, so, as something prone to outright aggression. Ultimately, I offer this examination of the Network of Recording Practice as an instance of "culture as defense," and as a defense against one of the many ways our current musical culture operates.

Finally, lest I be charged a "mechanist" — likely the most damaging insult going today, given the hegemony of Postmodern and Poststructural commentary over North American human studies and the inordinate amount of moral authority both interpretive modes assign to personal agency — I concede that I am, after much study and consideration of the Network of Recording Practice, a "mechanist." At the same time, however, I throw the full weight of my agreement behind perhaps the most egregiously elided of Marshall McLuhan's claims. In his 1967 classic, *The Medium is the Massage*, McLuhan begins with a quote from A. N. Whitehead: "The major advances in civilization are processes that all but wreck the societies in which they occur" (in McLuhan 196, 1). To which McLuhan responds:

There is absolutely no inevitability, so long as there is a willingness to contemplate what is happening (McLuhan 1967, 25; my emphasis).

What Is A Music Recording?
Poststructuralism, Media Ecology & the Network of Recording Practice

> *"The concert has been dragging on now for maybe twenty minutes. I hate live music but everyone around us is standing, their screams of approval competing with the racket coming from the towering walls of speakers." So says Patrick Bateman, "American Psycho."*

Paucity.

It is generally agreed that what people do to make and hear a music recording — that is, Recording Practice — is different than what they do to make and hear a "Live" or "Concert" musical exchange.[6] However, not much has been written about Recording Practice as a unique mode of musical communication. Besides a few notable exceptions, commentary remains locked inside what Richard Leppert has claimed to be "one of the most important discussions of aesthetics produced in the twentieth century.... the so-named Adorno-Benjamin Debate" (Leppert 2001, 240). That this debate should continue to be the frame of reference is surprising, especially since Adorno rarely addressed Recording Practice *per se* and Benjamin spoke of it only once. In fact, the sum of the so-named "Adorno-Benjamin Debate" amounts to roughly seven articles by Theodor W. Adorno and a couple of asides by Walter Benjamin inserted into an essay that claims to situate "the work of art in the age of mechanical reproduction," but remains mostly concerned about film.

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[6] "Recording Practice" is capitalized throughout this dissertation to acknowledge that, by the title, I refer to a complete "communications system" rather than just those procedures which record innovators undertake to make a music recording.

This is hardly a massive body of research. It is certainly not exhaustive. Furthermore, Adorno and Benjamin debated a good four decades prior to tape cassettes, compact discs, digital samplers, turntables (for turntablism), and numerous other developments in music technology. While, on a broadly theoretical level, their debate may still have much to say about what Recording Practice finally achieves for culture and humanity at large, it can have little, if anything, to say about any music technology after the gramophone. All that can be done is speculate how Adorno or Benjamin *might* have considered DJs "cutting" and "scratching," for instance, or record producers splicing and looping, or ravers raving to sampled beats. This leaves over five decade's worth of developments in music technology unaccounted for in all but the most abstract terms.[7] Perhaps, then, as Paul Théberge contends, "the enduring

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[7] Major artifacts of this "debate"/"polemic," or essays which are considered to have been penned in response to it, include, among others, Theodor Adorno, "The Curves of the Needle," "The Form of the Phonograph Record," "Opera and the Long Playing Record," "On the Fetish-Character of Music and the Regression of Listening," "On Popular Music" and "On Jazz," all in *Essays on Music*, selected, with an introduction, commentary, and notes by Richard Leppert, new translations by Susan H. Gillespie. (Berkeley: University of California Press, 2002), pp. 271-276, 277-282, 283-287, 288-317, 437-469 and 470-495, respectively. See also Max Horkheimer and Theodor Adorno, *Dialectic of Enlightenment.* (New York: Continuum, 2002); and Walter Benjamin, "The Work of Art in the Age of Mechanical Reproduction," *Illuminations: Essays and Reflections*, edited and with an introduction by Hannah Arendt. (New York: Schocken Books, 1968), pp. 217-252. Though not concerned with phonography *per se*, Benjamin's understanding of the potential of technical reproduction to redress certain institutionalized imbalances of power which obtain under conditions of democratic or fascist capitalism are also apparent in Walter Benjamin, "The Author As Producer," *Walter Benjamin: Selected Writings Volume 2, 1927-1934*, eds. Michael W. Jennings et al. (Cambridge: The Bellknap Press of Harvard University, 1999), pp. 768-782. For a study of uses to which this "debate" has been put by musicologists, see, for instance, Henry Klumpenhouwer, "Late Capitalism, Late Marxism & the Study of Music," *Music Analysis* Volume 20/Number 3 (October 2001): 367-405.

influence of the Adorno-Benjamin polemic" in study of Recording Practice signals "a paucity of new theories dealing with the role of technology in music," rather than that the debate continues to have relevance (Théberge 2001, 215).

Much more can be made of this "paucity" than has been. Commentators who acknowledge this "paucity" typically treat it as though it were nothing more controversial than a perfectly innocent, albeit unfortunate, happenstance, which will be rectified when analysts finally get around to studying Recording Practice. But this "paucity" is, itself, the consensus view of Recording Practice at present, not a signal that the field is fragmented. That is, a "paucity of new theories dealing with the role of technology in music" is precisely how the majority of academics now think about making and hearing music recordings. As such, it should have much to say about those interests which currently compel academic inquiry into Recording Practice, upon whose behalf this "paucity" was generated, and for whose benefit it is presently perpetuated.

Indeed, according to Herbert Marcuse, "paucity" is always conventional in its scope and constitution. Thus, what is often understood as "the brute *fact* of scarcity" is actually the consequence of "a specific *organization* of scarcity," "*imposed* by the mode of work" that prevails at any given time in any given place (Marcuse 1955, 36; his emphasis). What, then, *makes* the "paucity" which Théberge identifies? What accounts for its institutionalization as the consensus view of Recording Practice? Or, alternatively, why is the consensus understanding of making and hearing music recordings characterized by a "paucity" of theory now? Which analytic or interpretive interests does this "paucity" satisfy, and what routinely eludes its analytic grasp?

Road Map to Chapter 1.

These questions frame my study. In Section 1, I outline what is, at present, the consensus view of Recording Practice — namely, that we should be theoretically inactive when it comes to music technology — and challenge it based upon how it conceives a music recording. Discerning a basis for this "consensus view" in genuinely "poststructural" modes of inquiry into culture and cultural practices, and in advertising strategies which North American record labels such as The Victor Talking Machine Company adopted during the first two decades of the twentieth century, I then outline a "media ecological" perspective on Recording Practice as an alternative in Section 2, emphasizing the music recording which this interpretive mode construes. Following this, I elucidate a structure for Recording Practice which emerges from this media ecological conception of music recordings, and elucidate its networked form. In Section 3, I clarify what are, to my mind, the social precedents and consequences of this networked structure. Finally, in Section 4, I conclude by suggesting ways that theorists of Recording Practice might fruitfully adopt a media ecological perspective on what they study, and explain what I consider to be the benefits of doing so.

SECTION ONE

Adorno and Benjamin, in the Rear-view Mirror.

Adorno and Benjamin disagreed as much as they agreed. It was clear to both theorists that "practices of sound reproduction reorient practices of sound production" (Sterne 2003a, 221). They disagreed about what this alleged reorientation achieves.

According to Adorno, "the transition from artisanal to industrial production transforms not only the technology of distribution but also that which is distributed" (Adorno 2001, 271). Benjamin concurred, adding that "that which is distributed" is transformed from a singular into a multiplicitous existence beyond originality. Consequently, to Adorno's mind, people are *rendered* increasingly passive and manipulable; or, to Benjamin's mind, they become more critical and, thereby, better equipped to inspire social change. Either way, both theorists agreed that (i) Recording Practice *mandates* refiguring of "live" musical practice and (ii) this refiguring, itself, *constitutes* social change.[8]

Moreover, Adorno and Benjamin were not so much concerned with Recording Practice as they were with the social consequences of industrial mass production in general. Recording Practice figures in their debate briefly, and only to demonstrate broader claims they make concerning what mass production *per se* can be said to achieve for cultures which develop it under conditions of fascist or democratic

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[8] Benjamin's exact words on the matter are: "to an ever greater degree the work of art reproduced becomes the work of art designed for reproducibility," in Walter Benjamin, "The Work of Art in the Age of Mechanical Reproduction," *Illuminations: Essays and Reflections*, edited with an introduction by Hannah Arendt. (New York: Schocken Books, 1968), 224. Elsewhere, Benjamin qualifies this notion somewhat, writing that "only by transcending the specialization in the process of intellectual production — a specialization that, in the bourgeois view, constitutes its order — can one make this production politically useful; and the barriers imposed by specialization must be breached jointly by the productive forces that they were set up to divide.... What we require of the photographer is the ability to give his picture a caption that wrenches it from modish commerce and gives it a revolutionary use value," in Walter Benjamin, "The Author as Producer," *Selected Writings Volume 2, 1927-1934*, eds. Michael W. Jennings et al. (Cambridge: The Bellknap Press of Harvard University Press, 1999), 775.

capitalism. Likewise, both used what Marshall McLuhan called "the rear-view mirror" as their analytic lens. That is, when faced with what they took to be the "totally new situation" of mass produced culture, as McLuhan explains of "rear-view mirrorists" in general, Adorno and Benjamin attached themselves with equal fervor to "the objects, to the flavor of the most recent past" (McLuhan 1967, 26-27).

Recording Practice was notable for Adorno and Benjamin only as a technological rupture occurring *within* the broader trajectory of "Live" or "Concert" exchange. Film was significant only as a technological rupture occurring *within* the broader trajectory of Western drama. Photography figured only in terms of painting, radio figured only in terms of public address, long playing records figured only in terms of the opera hall, etcetera.[9]

It is telling that Adorno and Benjamin never once turned "the rear-view mirror" to face themselves, to consider the emergence of typographic print and mass production of books as a technological rupture occurring within their own critical practice, as Marshall McLuhan would do in 1962, with *The Gutenberg Galaxy* (1962). Both were much more concerned with understanding how the historical emergence of technologies of

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[9] See, for instance, Theodor W. Adorno, "The Radio Symphony," "Opera and the Long Playing Record," "On Popular Music," "On Jazz" and "Farewell to Jazz," all in Theodor W. Adorno, *Essays on Music*, selected, with introduction, commentary, and notes by Richard Leppert, new translations by Susan H. Gillespie. (Berkeley: University of California Press, 2001), pp. 251-270, 283-287, 437-469 and 296-500, respectively; Walter Benjamin, "Painting and the Graphic Arts," *Selected Writings Volume 1, 1913-1926*, eds. Marcus Bullock and Michael W. Jennings. (Cambridge: The Bellknap Press of Harvard University Press, 1999), 82; and Walter Benjamin, "Little History of Photography," "Reflections on Radio" and "The Newspaper," all in *Selected Writings Volume 2, 1927-1934*, eds. Michael W. Jennings et al. (Cambridge: The Bellknap Press of Harvard University Press, 1999), pp. 507-530, 543-544 and 741-742, respectively.

mass production had conditioned, if not determined, the emergence and everyday consciousness of the so-called "masses" of advanced industrial capitalism than with situating themselves as one of its many "faceless" members, and the products of their labour as one of its many anonymous, standardized wares.[10] The "masses" typically figure in Adorno's and Benjamin's accounts as only a reified metonym for what they agreed was the efficacy of technologies of mass production, once "applied" to culture, to reconfigure the human sensorium in the interests of those who own them. As Benjamin explains:

> The growing proletarianization of modern man and the increasing formation of masses are two aspects of the same process. Fascism attempts to organize the newly created proletarian masses without affecting the property structure which the masses strive to eliminate. Fascism sees its salvation in giving these masses not their right, but instead a chance to express themselves. The masses have a right to change property relations; Fascism seeks to give them an expression while preserving property. The logical result of Fascism is the introduction of aesthetics into political life. The violation of the masses, whom Fascism, with its *Führer* cult, forces to their knees, has its counterpart in the violation of an apparatus which is pressed into the production of ritual values.... Fascism.... expects war to supply the artistic gratification of a sense perception that has been changed by technology (Benjamin 1968, 241-242).

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[10] As Istvan Mészaros notes, Theodor W. Adorno's and Max Horkheimer's decision even just to "make a 'school' out of the great diversity of individuals who were eventually subsumed under the label of 'critical theory' had as much to do with the needs of the 'culture industry' and the 'manipulative mass media'.... as with the intellectual coherence of their ideas," Istvan Mészaros, *The Power of Ideology*. (New York: New York University Press, 1989), pp. 91-92.

Mystical Benjamin: Aura & Distraction.

Though Benjamin's contribution to the "Adorno-Benjamin Debate," an essay entitled "The Work of Art in the Age of Mechanical Reproduction" (1968), typically garners more favorable than critical reviews nowadays, and though he wrote the essay faced with the awful reality of Nazi fascism, it is hardly unproblematic. Benjamin pursues a crudely deterministic argument throughout the essay, albeit under the auspices of formulating a theory of mass production "useless for the purposes of fascism," "useful for the formulation of revolutionary demands in the politics of art" instead (Benjamin 1968, 218). Indeed, the "penetration" of mass production "into the production of ritual values," as Benjamin refers to the so-called "massification" of Western culture, emerges from the essay as such a phenomenologically epochal event that readers may be forgiven for getting the sense that the development of film, for instance, was a seismic rupture in the otherwise orderly progress of human sensory experience.

Following Bertolt Brecht in "Radio: eine vorsintflutliche Erfinding?" (1932), Benjamin locates "aura" — a rather mystical substance, which encourages a socially affirmative or, in Benjamin's parlance, "ritualistic" reception of anything which contains it — within every artisanally produced "artwork." According to Benjamin, this aura "withers" once the "original" which contains it is copied, and for no other reason than that it is copied. That is, once subjected to the rationalized rigors of industrial mass production, artisanally produced "artworks" become something else entirely: "copies" which make neither conceptual nor practical reference to artisanal modalities of "originality," which reference "prototypicality" (i.e., the industrial equivalent of artisanal "originality") instead. Indeed, it is ultimately "mechanical

reproduction" *per se* which "changes the reaction of the masses toward art" to Benjamin's mind, not the "art" itself (Benjamin 1968, 234).

In fact, according to Benjamin, once "mechanical reproduction" overtakes artisanal production completely as the basis of all cultural production, as he argued it already had by 1937, "artists" become molders of "prototypes" rather than creators of "originals." Therethrough, Benjamin claims, culture's "parasitical dependence upon ritual" is ended (Benjamin 1968, 220). Culture becomes especially vulnerable to fascistic manipulation as a consequence, but precisely as it garners for its participants a greater criticality. Thus, Benjamin concludes, mass production provides those who exploit it with a powerful new tool for evaluating the varieties of experience which their culture affords them, instead of simply another way to unthinkingly digest the "radical political potential" of cultural artifacts in according with staid, socially conservative rituals of reception. In short, "the instant the criterion of authenticity ceases to be applicable to artistic production, the total function of art is reversed; instead of being based on ritual, it begins to be based on another practice-politics" (Benjamin 1968, 224).

Even if "the masses" are figured by mechanical reproduction into "absent-minded" examiners or "distracted" critics of "artworks," as Benjamin later claims they are, their "distracted" reception nonetheless provides for a kind of subjective integrity which Benjamin argued Nazi fascism obliterated, piecemeal, even while he wrote. Ultimately, confronted with mass production, Benjamin's

> viewer becomes a critic instead of a worshipper of believer. Benjamin employs distraction as a mark of expertise among the masses; it signals the habitual. That is, distraction implies a level of expertise to which the mechanically reproduced artwork can appeal yet without colonizing the viewer. In other words, the viewer's interpretive agency is implicitly valorized by film and also,

> as it were, protected (through replacement of aura by distraction). By honoring this agency film honors the masses as subjects and at the same time contributes to their subjecthood (Leppert 2001, 242-243).

Generative Adorno: Record Receiver as Dog.

For Adorno, mass production was a much more abstract process, with much more abstract consequences, than Benjamin considered. Most famously, to Adorno's mind, "the whole" was "the false" (Adorno 1973, 50). Thus, it was an exceedingly problematic proposition for Adorno that a "base" of any sort be understood to determine the uses and gratifications of a technology within the context of a mass produced, inherently capitalist superstructure. However, in rejecting outright the concept of "base," leaving himself no particular concept of "totality" in which to situate mass production, Adorno could only offer a series of mostly poetic descriptions of life under conditions of industrial mass production — as though they were critical observations, and generally without further comment. As Istvan Mészaros notes:

> even at the core of his [read: Adorno's] theoretical enterprise one could find a fundamental contradiction which tended to paralyze him not only politically and ideologically but also intellectually. For while he accepted the Marxian framework (in the form in which he inherited it above all from Lukacs's *History and Class Consciousness*, instead of appropriating it on the basis of a solid first-hand study) as a tool of *diagnosis* for grasping the general outlines of the capitalist age and its 'reification,' he had to reject it in its historical specificity as the necessary *strategic framework of action* applicable to his own circumstances. He had to reject it because acceptance of the Marxian perspective in the second sense was radically incompatible with his own 'principled' rejection of both active political/organizational involvement and ideological *commitment*, in favour of a generic form of 'criticism' (Mészaros 1989, 104; his emphasis).

With regards to the gramophone, Adorno simply declares "audience and object alike.... petite bourgeois girls, most of them underage," who can only "wait for someone to approach them," assumedly, to ask for a dance (Adorno 2001, 274). "The female voice," on the other hand, sounds "shrill" when it is reproduced; apparently unlike the male voice, the female voice "*requires* the physical appearance of the body that carries it," even while "it is just this body that the gramophone eliminates, thereby giving every female voice a sound that is needy and incomplete" (Adorno 2001, 274; my emphasis). Elsewhere, Adorno refers to "screeching records," "lewd *chansons*" and "impotent Siméons.... rhymed.... with large pantalons" (Adorno 2001, 274). "Records" become "virtual photographs of their owners, flattering photographs," which "want, above all, to be similar"; eventually, "records" become the harbingers of a "primordial affect," which reduces every record receiver to the status of a "dog" (Adorno 2001, 274). Finally, Adorno concludes:

> There is only one point at which the gramophone interferes with both the work and the interpretation. This occurs when the mechanical spring wears out. At this point the sound droops in chromatic weakness and the music bleakly plays itself out. Only when gramophonic reproduction breaks down are its objects transformed. Or else one removes the record and lets the spring run out in darkness (Adorno 2001, 275).

On a broader level, in what is now probably his most controversial essay, "On the Fetish-Character in Music and the Regression of Listening" (1938), Adorno declares mass produced "music entertainment" *per se* so degraded that it can only "inhabit the pockets of silence that develop between people moulded by anxiety, work and undemanding docility" (Adorno 2001, 289). Rather than specify these "pockets of silence" according to where exactly they obtain, however, Adorno treats them generically, locating them "everywhere," which is to say, no place in particular (Adorno

2001, 287). Furthermore, Adorno fails to explain what exactly those who inhabit these "pockets of silence" are anxious about — their jobs, the threat of war, of fascism, of a rash on the soles of their feet, etcetera — nor what a specifically "*undemanding* docility" might be in concrete, psychological terms. Adorno simply leaves his Dystopian metaphors stand, and concludes with a truism: "If nobody can any longer speak, then, certainly, nobody can any longer listen" (Adorno 2001, 289).

This said, Adorno contradicts himself only a short while later. People do, in fact, "listen," but only "atomistically," which is to say, in terms of a "bad naiveté" that "loses itself weakly, passively, in the charm of the moment, the pleasant single sound, the easily graspable and recollectable memory" (Adorno 2001, 318). "Music," as a genre of human communications, consequently emerges as an objective manifestation of "that anxiety, that terror, that insight into the catastrophic situation which most merely evade by regressing" (Adorno 2001, 315; his emphasis). Again, however, it remains up to readers to specify what — in concrete, psychological terms — actually constitutes "that anxiety, that terror, that insight," and what else "the catastrophic situation which most merely evade by regressing" *could* be.

"The True" is "The Whole" is "The False": Adorno's Solipsism.

Given his fondness for figuring life under conditions of industrial mass production as an Huxleyean Dystopia, it is ironic that Adorno should have so virulently opposed critical commitment to any conception of "the whole." Refusing to, in his own words, "take a standpoint," Adorno committed himself instead to a rather aristocratic, culturally omnivorous analytic gaze which ranged indiscriminately — and, to my mind, often illogically — over numerous cultural fields in the course of a single analysis

(Adorno 1973, 203).[11] With no concrete parameters of analysis set out before him, Adorno could, for instance, denounce jazz as a collective enactment of castration anxieties in the same breath as he might celebrate the collected works of Arnold Schoenberg as an affront to hedonism. He could describe Schoenberg's "pantonal" dissonance as a byproduct of advanced industrial capitalism while maintaining that even just the concept of a determining "base," however tentatively elucidated, constitutes far too metaphysical a construct to provide a full accounting for modern times. Adorno could even denounce Benjamin's conception of "criticality" as "undialectical," just as he deemed "criticality" wholly a grace granted to "intellectuals" by a "stroke of luck" (Adorno 1967, 34).

Given his refusal to commit to anything but "negation without affirmation," Adorno could only consider mass production in the most abstract and ahistorical of terms. As with Benjamin, it was mass production *per se* which "transform[ed] the temporal sequence of objects into more of the same" to Adorno's mind; mass production itself "purges the life-process of all that is uncontrollable, unpredictable, incalculable in advance," "thus depriving it of what is genuinely new, without which history is hardly conceivable" (Adorno 2000, 272-274). Thus, Adorno claims, through its mass production, culture's inherent capacity to facilitate "transcendent ideation" — that is, culture's capacity to facilitate consideration of other social modes than the immediate — is warped into an especially perverse manner of brainwashing. Western popular culture, Adorno concludes, is nothing more than a function of this "warping."

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[11] Adorno refuses to "take a standpoint" for reasons which he tries but, by his own admission, ultimately fails to clarify in Theodor W. Adorno, *Negative Dialectics*, translated and with an introduction by E. B. Ashton. (New York: Continuum, 1973).

Indeed, the Average Joes and Janes of mass produced, capitalist modernity finally emerge from Adorno's account as something like an army of Manchurian Candidates, each duped into a lifetime of compulsive consumption, and forcibly regressed to a specifically "undemanding" docility, by the so-called "culture industry." According to Adorno, "no independent thinking must be expected from [this] audience" by analysts (Adorno and Horkheimer 2002, 47). After all, making and receiving mass produced cultural artifacts of *any* sort — whether films, radio broadcasts, photographs, music recordings, etcetera — only renders the "culture industry's" brainwashing and infantilization of its patrons a socially venerated cultural activity:

> In so far as the culture industry arouses a feeling of well-being that the world is precisely in that order suggested by the culture industry, the substitute gratification which it prepares for human beings cheats them out of the same happiness which it deceitfully projects. The total effect of the culture industry is one of anti-enlightenment, in which.... enlightenment, that is the progressive domination of nature, becomes mass deception and is turned into a means for fettering consciousness. It impedes the development of autonomous, independent individuals who judge and decide consciously for themselves (Adorno 1991, 106).

"Live" Exchange vs. Recording Practice: Dualism vs. Difference.

Engaging in the so-called "Adorno-Benjamin Debate" works only to reproduce what Paul Théberge considers "one of the most common and most often conservative popular critiques of technology[,] which pits sound recording and its associated practices against 'live' performance as the norm" (Théberge 2001, 210). Even if the goal of analysis is to cast Recording Practice as somehow emancipatory from the supposedly feckless conventions of "Live" or "Concert" exchange, as it often is today,

one nevertheless maintains by the dualism of such a claim that the latter constitutes the only standard in comparison to which all other modalities of musical communications are scrutable.[12] Yet Recording Practice and "Live"/"Concert" exchange diverge *precisely because* the former reproduces, while the latter produces, sonic phenomena. Consequently, they enable fundamentally unique musical communications, and require different procedures, between which no unity can be asserted but that both furnish what is currently believed to be a genuinely "musical" experience.

When a person makes a music recording, for instance, they make a generation of sound reproduction technology — an *object* — which stores data, while those who perform "Live" make and shape sonic phenomenon. Also, as a number of commentators have already pointed out, those who make and hear a music recording must use sound reproduction technology to do so, while no such technology is required

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[12] Some, among others, who have treated Recording Practice in this or a similar manner include, in alphabetical order, Suzanne Cusick, "Gender and the Cultural Work of a Classical Performance," *Repercussions* Volume 1/Number 1 (Spring 1992): 77-110; Steven Clarke, "A Magic Science: Rock Music As Recording Art," *Popular Music* Volume 1/Number 3 (Spring 1983): 195-223; Antoine Hennion, "The Production of Success: An Antimusicology of the Pop Song," *On Record: Rock, Pop and the Written Word*, eds. Simon Frith and Andrew Goodwin. (New York: Pantheon, 1990), pp. 400-424; Russell A. Potter, "Not the Same: Race, Repetition and Difference in Hip-Hop and Dance," *Mapping the Beat: Popular Music and Contemporary Theory*, eds. Thomas Swiss, John Sloop and Andrew Herman. (Malden: Blackwell Publishers, 1998), pp. 31-47; Paul Théberge, "What's That Sound? Listening to Popular Music Revisited," *Popular Music — Style and Identity*, eds. Will Straw et al. (Montréal: Centre for Research on Canadian Cultural Industries and Institutions, 1995), pp. 275-283; and Steve Waksman, "Kick Out the Jams!: The MC5 and the Politics of Noise," *Mapping the Beat: Popular Music and Contemporary Theory*, eds. Thomas Swiss, John Sloop and Andrew Herman. (Malden: Blackwell Publishers, 1998), pp. 47-77.

to make or hear a "Live"/"Concert" exchange.[13] Moreover, in Recording Practice, it is listeners who initiate and control the sounding of music; they choose which music recordings to hear, when to hear them, where, at what volume, with what frequency parameters "boosted" or "cut," etcetera. Conversely, with "Live" or "Concert" exchange, these considerations remain the purview of performing musicians, as does the sounding of music in the first instance.

It is not so much that Recording Practice reorients "Live"/"Concert" exchange. Rather, both ways of musically communicating are differently oriented from the first. Recording Practice and "Live"/"Concert" exchange derive from, as they inspire, a distinct gamut of social precedents and consequences.

The "Incomplete" Perspective: Adorno's and Benjamin's Legacy.

Nevertheless, commentary on Recording Practice remains steadfast in its commitment to the established poles of the "Adorno-Benjamin Debate." Consequently, eight decades on, commentary *still* chiefly proceeds from the assumption that, in Marshall McLuhan's words, "the phonograph is an extension" — that is, a "prosthetic" — "of the voice" (McLuhan 1964, 275). While McLuhan means by this that certain technologies achieve as they derive from a new post-literate

[13] This point is made in, among other texts, Michael Chanan, *Repeated Takes: A Short History of Recording And ts Effects on Music.* (New York: Verso, 1995); Evan Eisenberg, *The Recording Angel: Music, Records and Culture from Aristotle to Zappa.* (New York: New York University Press, 1987); Paul Théberge, *Any Sound You Can Imagine: Making Music/Consuming Technology.* (Hanover: University of Wesleyan Press, 1997); and Albin J. Zak III, *The Poetics of Rock: Cutting Tracks, Making Music.* (Berkeley: University of California Press, 2001).

communications paradigm in the West, he also means that the phonograph, and every other sound reproduction technology, literally "extends" or "prostheticizes" a person's voice beyond its untechnologized scope. Ironically, commentators almost unanimously reject this claim on grounds of "technological determinism," yet themselves claim music recordings *per se* as nothing but technological "extensions"/"prosthetics" of original speech acts. Thus, the recorded voice is "disembodied" (i.e., technologically "extended"/"prostheticized" beyond corporeality), recorded space is "virtual" (i.e., technologically "extended"/"prostheticized" beyond materiality) and "sound fidelity" is demonstrable. Recording Practice can be nothing more unique than an incomplete rendition of "Live"/"Concert" exchange, then — a corporation of sounds endowed with neither body nor place, which is, in sum, identifiable only by what it *lacks* of "Live"/"Concert" exchange.

From this — "incomplete" — perspective, all those musical communications which occur as part of Recording Practice are, finally, nothing but byproducts of that confrontation between "Live"/"Concert" exchange and industrial mass production which commentators tautologically argue *generated* Recording Practice in the first instance. Anything said or heard in the process is only an indication that, for better or worse, "Live"/"Concert" exchange has been adapted by record innovators and record receivers to suit a circumstance in which new means of transmission prevail. Recording Practice therefore retains the traditional agency of a "sender" and "receiver" in musical communications, but alters:

(i) the formal constitution of the "messages" which can be sent and received;
(ii) how those "messages" can be sent and received; and
(iii) the number of receivers to whom a "message" can be sent.

A kind of Platonism is obviously at work here. An archetype of "good" or "successful" communication guides interpretation such that Shannon-Weaver's "senders" and "receivers" always figure, regardless of which materials they find worldly expression in. The medium as such — that which enables people only certain manners of communicating, only certain discursive agencies — simply vanishes from analysis. Recording Practice becomes technologically neutral and, thus, culturally "ubiquitous" — never a regimented set of uses for technology which each shapes those who undertake them into particular kinds of discursive agents, nor a matter of relative monetary, let alone of cultural, privilege.

"Disembodied" Voices: Uprooting Benjamin's Orchids.

Accepting the "incomplete" perspective on Recording Practice leads to a curious kind of analytic reasoning. In the case of the voice, for instance, the most "authentic" voice becomes that which Recording Practice is supposed to exempt from itself as a matter of course: the "embodied" voice of an "embodied" speaker. The "disembodied" voice — which, in this case, is to say, the "recorded" voice — materializes only the conspicuous absence of an "embodied" voice in this account, being identifiable to commentators only by its lack of "embodiedness." *But both the "embodied" voice and the "disembodied" voice are constructs of Recording Practice. They are things made, not things made present or absent, by it.* That is, in Walter Benjamin's slightly more poetic words,

> Mechanical equipment has penetrated so deeply into reality that.... the equipment-free aspect of reality has become the height of artifice. The sight of immediate reality has become an orchid in the land of technology" (Benjamin 1968, 233).

Indeed, the notion of an "embodied" voice is only possible if there is a "disembodied" voice with which to contrast it. In short, "authenticity and presence become issues only when there is something to which we can compare them" (Sterne 2003a, 220). It is, then, the historical emergence of a "disembodied" voice which, *on hindsight*, impresses even just the concept of an "embodied" voice upon our musical consciousness. The One (i.e., the "embodied" voice) cannot exist without its definitive Other (i.e., the "disembodied" voice).

However, commentators typically treat only the "disembodied" voices they claim to hear emanating from their stereo systems as a product of sound reproduction technology. The "embodied" voice is precisely what they claim a music recording is incapable of reproducing (it is precisely what must always be conspicuously absent during record reception). Thus, commentators study "disembodiedness" *per se* as though it were a fundamental constituent of Recording Practice. Casting this "disembodiedness" as an "unintended consequence" of sound reproduction technology, commentators proceed to posit it as indicative only of the very pre-technological sort of "embodiedness" which it, itself, determines.

Ultimately, commentators who insist upon an "embodied"/"disembodied" dualism study Benjamin's "orchids" — themselves a metonym for that kind of "originality" which can only be seen on hindsight, pieced together from copies — without inquiring further into the metaphor to determine what conditions enable such "orchids" to thrive, or what compels them to blossom, in the first place. As Jonathan Sterne explains:

> The logic of 'original' and 'copy' does not adequately describe the process of sound reproduction.... The 'original' embedded in the recording.... certainly bears a causal relation with the reproduction, but *only* because the original is itself an artifact of the process of reproduction. Without the technology of reproduction,

> the copies do not exist, but, then, neither would the originals.... Therefore, a notion of [Recording Practice] based on a fundamental distinction between original and copy will most likely bracket the question of what constitutes the originality itself. In emphasizing the products of reproduction, it effaces the process (Sterne 2003a, 219; his emphasis).

Poststructuralism: the New Science.

No matter how idealistic or Platonic it may seem given a close scrutiny, the "incomplete" perspective on Recording Practice prevails. This is so due to the prevalence of so-called "poststructural" inquiry in current commentary on Recording Practice. Indeed, the "incomplete" perspective on Recording Practice, and a genuinely poststructural approach to music technology, proceed hand-in-hand.

By now, poststructuralism constitutes a powerful institutional pressure with which those who would understand Recording Practice, especially under the auspices of academic inquiry, must contend. It has blossomed into such a vast interpretive field that inquiry into its current situation in analysis of culture could, and probably should, be voluminous in scope. However, a logical basis, if not a structural foundation, can be asserted for poststructuralism, specifically, as it obtains in present study of making and hearing music recordings.

Poststructuralism is chiefly considered a reaction to, more so than a modification of, certain foundational tenets of what it takes as its negative movement, namely, structuralism. From its beginnings in America, which dates back to Jacques Derrida's "Structure, Sign and Play in the Discourse of the Human Sciences" (1967/1968), poststructuralism has been mostly content to construe gaps or lacunae in structuralist knowledge, and to constitute itself within those gaps. Charging the latter

with a blinkered analytic gaze upon certain "paradoxical origins" — and, thereby, of artificially centering itself upon an immanent contradiction — poststructuralism characterizes itself in turn as a palliative for the allegedly metaphysical, naive and arrogant interpretive excesses which it claims inevitably ensue given the former.[14] Most often, in fact, poststructuralism is positioned by its adherents as a critical project which is devoted in its entirety to rectifying numerous, often allegedly "amoral" lacunae in preceding (but mostly structuralist) modes of knowledge production, rather than as a mode of knowledge production with merit in its own right.

This critical focus is perhaps most notable in a debate which Michel Foucault undertakes with what he calls the "global, *totalitarian* theories" of Karl Marx and Sigmeund Freud: "Power/Knowledge" (Foucault 2001, 69; his emphasis). In Foucault's words, "the attempt to think in terms of a totality has in fact proved a hindrance to research" (Foucault 2001, 69). This said, Foucault proceeds to describe both Marxist political-economy and Freudian analytic-psychology — two modes of knowledge production which Foucault takes as representative of structuralism in general — as, *in toto*, nothing but methods for "disqualifying" as "inadequate" what they first assume are "naive knowledges, located low down on the hierarchy beneath the

[14] I use the term "paradoxical origin" here to reference Derrida's (1967/1968) primary complaint against, for example, the structuralism of Claude Lévi-Strauss, which is that structural "mythologies" of meaning purport a basis for all knowledge production constituted by an "origin" — or, let's face it, a Prime Mover (sometimes referred to as a "transcendental signified") — which exists "outside" or independent of the structure it is ultimately argued to constitute. The most common example deployed to elucidate this is Christian theology and its dependence upon a God figure, who may act in what secular reason determines to be antithetical manners from those strictures which the church arguably levels upon behavior in "His" name.

required level of cognition or scientificity" (Foucault 2001, 69). In their stead, Foucault proposes "genealogy," a critical project which he outlines in a summary that is worth reproducing here in full:

> This research activity, which one can thus call genealogical, has nothing at all to do with an opposition between the abstract unity of theory and the concrete multiplicity of facts. It has nothing at all to do with a disqualification of the speculative dimension which opposes to it, in the name of some kind of scientism, the rigor of well established knowledges. It is not therefore via an empiricism that the genealogical project unfolds, nor even via a positivism in the ordinary sense of that term. What it really does is to entertain the claims to attention of local, discontinuous, disqualified, illegitimate knowledges against the claims of a unitary body of theory which would filter, hierarchies and order them in the name of some true knowledge and some arbitrary idea of what constitutes a science and its objects.
>
> Genealogies are therefore.... precisely anti-sciences. Not that they vindicate a lyrical right to ignorance or non-knowledge: it is not that they are concerned to deny knowledge or that they esteem the virtues of direct cognition and base their practice upon an immediate experience that escapes encapsulation in knowledge.... We are concerned, rather, with the insurrection of knowledges that are opposed primarily not to the contents, methods or concepts of a science, but to the effects of the centralizing powers which are linked to the institution and functioning of an organized scientific discourse within a society such as ours. Nor does it really basically matter all that much that this institutionalization of scientific discourse is embodied in an university, or, more generally, in an educational apparatus, in a theoretical-commercial institution such as psychoanalysis or within the framework of reference that is provided by a political system such as Marxism; for it is really against the effects of the power of a discourse that is considered to be scientific that the genealogy must wage its struggle (Foucault 2001, 71).

Though Foucault's explanation of the critical aims of "genealogy" is clear, it remains unclear how, exactly, "the *power* of a discourse that is considered to be scientific" can be extricated from the discourse of "scientism" itself. Judging only "scientific" discourses and not the discourse of "scientism" itself, "genealogy" would work only to falsify certain discourses based upon the allegation that they "subjugate" rather than falsify, even as, in so doing, it would have to consider falsification *per se* mostly a rhetorical device (Foucault 2001, 70). That is, should the focus of "genealogy" slip from "scientism" to "scientific" discourses — say, again, from "scientism" to Marxist political-economy or Freudian analytic-psychology — "genealogy" could only do precisely what it sets out not to, namely, make of itself a "scientific" discourse which works to negate the negations of not "scientism" but "scientific" discourses in general, simply readjusting the terms of falsification such that the identification "subjugated" disqualifies "subjugating," "insurrection" disqualifies "tyranny," etcetera.

Still, any supposedly "emancipatory," "anti-totalitarian" and "revolutionary" project must be worth pursuing. But, again, how is "genealogy" to be achieved? That is, how does "genealogy" comport itself faced with charges such as Istvan Meszaros's that, when the concept of "totality" is in the first instance dismissed as only a "hindrance to research":

> we are presented with general theories.... which are problematical even in their own terms of reference. For in their utter *negativity* they are parasitic on the rejected forms of emancipatory discourse, without being able to indicate at the same time on the basis of the actual historical dynamics some feasible forces of individual and social emancipation, together with the modalities of their likely action through which the transcendence of the new prevailing conditions of (generically criticized) domination could be accomplished (Mészaros 1989, 43).

First, according to Foucault, analysts must recognize genuinely "structuralist" notions of how the world works as, fundamentally, no more than analytic "pretenses" devised and deployed by an empowered few — something like a Marxian intellectual "vanguard," or a Platonic "guardianship" — to "disguise" those "subjugated knowledges," "those blocs of historical knowledges, which [are] present but *disguised* within the body of functionalist systematizing theory" (Foucault 2001, 70; my emphasis). Then, analysts must adopt "genealogy" as an antidote. As Foucault writes, "genealogy" is "the tactics whereby, on the basis of.... local discursivities," so-called "disguised" or "subjugated knowledges" are "released" and finally "brought into play" (Foucault 2001, 72).

Thus, Foucault more than implicitly claims "genealogy" as "emancipatory" or "revolutionary" and, for instance, Marxist political-economy and Freudian analytic-psychology as "conservative," if not straightforwardly "oppressive." These charges surely run counter to Marx's and Freud's *radically* humanitarian aims, and counter to Foucault's stated aim of targeting only "scientism" by "genealogy." Aside from this, there is also the broader question of whether or not "genealogy" is modifiable. After all, "genealogy" openly seeks an anti-systemic/anti-structuralist constitution in favor of — to my mind, a generically described — "open" participatory politics, albeit without the participation of Marxists or Freudian analytic psychologists, nor, I suppose, of physicists, pediatricians, quantum chemists, geologists, statistical sociologists, evolutionary psychologists, nor of anyone else who thinks in terms of structure and empirical falsifiability.

Perhaps most problematically, Foucault claims to seek this "anti-systemic" constitution for "genealogy" under the auspices of achieving a rather moral victory. Indeed, Foucault's truth claims (about truth claims in general) are couched in such

moral terms that I find it exceedingly difficult to openly consider even just the possibility that they may be inherently flawed, or in need of modification, for fear of being charged something like a "counterrevolutionary" (and, I should note, I have been informed more than once during my career as a graduate student that my skepticism towards "genealogy" is simply a function of the fact that I am white, heterosexual and male). How does one even begin to advocate for a mode of knowledge production which another, now more empowered, mode describes as "totalitarian" and "tyrannical"? What are people to do with any reservations they may have about "genealogy" faced with its rather Orwellian assertion that such reservations can, on some level, be chalked up to unconscious sympathy with "bad" or "Philistine" politics?

Though there is certainly merit to the *notion* of "power/knowledge," and though "genealogy" certainly *sounds* a noble enough cause, seldom are its most basic propositions addressed. How, for example, does "genealogy" avoid becoming yet another in a long line of, by its own logic, "rhetorical devices" and "narrative strategies" deployed to seize interpretive or analytic power for itself, and for those upon whose behalf it operates? Again, "genealogy" clearly seeks to "subjugate" Marxist political-economy and Freudian analytic-psychology — which, by its *ad homonem* logic, is to say Marxists and Freudians — claiming that such interpretive modes are worthy of treatment by present-day scholars as nothing more than "global, totalitarian theories." In doing this, "genealogy" rather straightforwardly seeks to *reveal* that, by nature of their "totalitarian" claims to "scientism," "scientific" discourses do not meet the requirements of "anti-science," which is the broader discourse that "genealogy" constructs and embeds itself within.

Ultimately, "genealogy" disqualifies what does not meet the requirements of "anti-science" from further development (except, perhaps, as an historical aberration

which "genealogy," by its supposedly "anti-systemic nature," claims to rectify). But this leaves only the discourse of "anti-science" as a marker of historical accuracy and relevance. Situating one's discourse within the broader discourse of "anti-science," or "genealogy," becomes the only recourse for *constituting* the relevance and tenability of one's claims. Indeed, "anti-science" shall likely have to face an "anti-science" of its own someday, namely, a recuperated "scientism."

Shaping Discourse(s): Musicology Interpellates "Genealogy's" Rhetoric.

Such — to my mind, insurmountable — contradictions aside, the moral rhetoric which Foucault deploys throughout "Power/Knowledge" seems to have found its way into musicological considerations of poststructuralism. Alastair Williams, for instance, recently claims that poststructuralism "*exposed*" the "*great arrogance*" of structuralism, which is, to Williams's mind, "the belief that it could somehow transcend its own methodology" and "access fundamental principles" (Williams 2001, 27; my emphasis).[15] Poststructuralism is nothing less than a "rectification" of structuralism's "universalizing" tendencies, according to Williams, the latter being only analytic "pretense[s]" deployed to "uphold the neutral values of a symbolic system instead of understanding" themselves as constitutive of "a shaping discourse" (Williams 2001, 28-29). That said, Williams does finally concede that poststructuralism, too, can be understood to conceal a number of:

> totalizing tendencies, since history, too, can be read as a construction, as something to be challenged and scrutinized. A willingness to bypass the subject

[15] This strikes me as no more an article of faith than to profess the empirical impossibly of doing so and, in turn, stating the objective impossibility of objective ideation *per se.*

> and a reluctance to reflect on the historical locations of its own discourses are structuralist problems that remain endemic to poststructuralism (Williams 2001, 29).

The notion that, as a critical project, structuralism did, or does, not consider itself a "shaping discourse" is seriously misguided. It is, though, a popular misconception at present. Again, according to Foucault, "if we have any objection against Marxism," for instance,

> it lies in the fact that it could effectively be a science. In more detailed terms, I would say that even before we can know the extent to which something such as Marxism or psychoanalysis can be compared to a scientific practice in its everyday functioning, its rules of construction, its working concepts, that even before we can pose the question of a formal and structural analogy between Marxist or psychoanalytic discourse, it is surely necessary to question ourselves about aspirations to the kind of power that is presumed to accompany such a science (Foucault 2001, 72).

As though he were finally shredding a taboo which has persisted for eons, Foucault concludes his study by demanding of "scientific" Marxism: "Which theoretical-political *avant-garde* do you want to enthrone in order to isolate it from all the discontinuous forms of knowledge that circulate about it?" (Foucault 2001, 72).

Perhaps I am alone in this, but Foucault's entire interrogation of Marx strikes me as tantamount to demanding of a Catholic priest whether or not he secretly believes in transubstantiation. The *whole point* of Marx's critique of capitalism was to effect change — to instantiate a shaping discourse about capitalism which would "filter, hierarchise and order" whatever it comes across in order to falsify any truth claim which does not shape its object(s) of inquiry in accordance with Marx's humanitarian aims. Marx's eleventh thesis on Feuerbach, though controversial, can at least be said

to point to this goal: "The philosophers have only *interpreted* the world in various ways; the point, however, is to *change* it" (Marx 1998, 574; my emphasis).

In fact, especially in his most sustained critique of capitalism, *Das Kapital* (2003), Marx is anything if not clear concerning what, specifically, troubles him about the capitalist mode of production, and what he hopes to clarify to his readers by analyzing its architecture. It is, to Marx's mind, simply paramount that, as Ursula M. Franklin explains of her own concerns as an analyst of technology and Western capitalist modernity, "over the unending din of economic rhetoric, we.... speak of what happens to people"; that "what happens to people" not be understood as "a mere footnote to an economic report, but [as] the central focus for action of governments and communities" (Franklin 1992, 177).

As one among many possible historical modes of production, capitalism is, in Marx's opinion, actually a form of anarchy, specifically, in its means and relations of production. As Jonathan Wolff writes, "innovate or die is the logic of capitalism," which is to say, "be incredulous towards *everything*," from technology to metanarrative, that conserves, rather than intensifies, the rate of return (Wolff 2002, 65). Given this refusal to "take a stand" on any issue but blind obedience to the profit motive, the capitalist mode of production consequently enables a mass extortion of arbitrarily construed value *from people's bodies*, based upon what amounts to a genetic lottery that works to garner privilege for some and disfranchisement for others; and which perpetuates itself by (i) furnishing only the privileged few ownership over the material means of (re)production, and (ii) tacitly venerating their use of these means in the service of self-preservation and advancement (which is, at the same time, preservation and advancement of capital).

Ultimately, in Marx's opinion, it is the capitalist mode of production itself which allows for a "constantly diminishing number of.... magnates of capital who usurp and monopolize all advantages of this process of transformation" and, in so doing, who "grow the mass of misery, oppression, slavery, degradation, exploitation" (Marx 1978, 438). In *Das Kapital*, as elsewhere, Marx is forthrightly concerned with for whom, specifically, this might be said to occur, and how exactly the capitalist obtains such "global, totalitarian" sway over human life:

> Modern industry never views or treats the existing form of a production process as the definitive one. Its technical basis is therefore revolutionary, whereas all earlier modes of production were essentially conservative. By means of machinery, chemical processes and other methods, it is continually transforming not only the technical basis of production but also the functions of the worker and the social combinations of the labour process. At the same time, it thereby also revolutionizes the division of labour within society, and incessantly throws masses of capital and of workers from one bracket of production to another (Marx 1976, 617).

It is, then, the poststructural critique which makes the claim for "scientific" neutrality with regards to structuralism, especially with regards to any Marxian variants. Marx was interested in making empirically falsifiable claims about capitalism, to be sure, but to clarify its falsifiability, ruthlessness, aggressive anti-humanism and, as such, its untenability. Through its poststructural critique, Marx's own critique of, most obviously, Hegelian dialectics and so-called "positive" or "identity consciousness" — a critique first launched to rectify specific social conditions which had contributed to people being systematically made to suffer on a physical, emotional and spiritual level (and Foucault's blunt, negative critique of Marx as a "global, totalitarian" theorist is especially troubling in this respect) — is reshaped into

nothing but a method for *improperly* knowing the world. What began as a humanitarian reappraisal of certain modalities of knowledge production becomes only a measure for producing greater or lesser degrees of accuracy in interpretations of cultural artifacts and the processes by which those artifacts are made. Consequently, studying culture becomes only a way to know better, a method for producing more or less authentic abstractions.[16]

Poststructural People: Centered On Decenteredness, Monolithically Plural.

To make the corrections it claims to, poststructuralism must abstract people precisely as it charges structuralism with doing. In Jill Dolan's words, "according to poststructuralism, subjectivity is *never* monolithic or fixed, but decentered and," thus, "constantly thrown into process by the very competing discourses through which identity might be claimed" (Dolan 1989: 59-60; my emphasis). Of course, this claim about what subjectivity "is never" is also a claim about what it *always* is. According to Dolan, subjectivity is essentially "decentered," in flux and "constantly thrown into process." Subjectivity is, in other words, centered upon "decenteredness" and, therefore, *monolithically* processual. Thus, subjectivity is shaped into a constantly moving

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[16] Indeed, here, it is the critique, and not the object of its criticism, which exemplifies that "academic discourse, and perhaps American university discourse in particular," which, according to Julia Kristeva, "possesses an extraordinary ability to absorb, digest and neutralize all of the key, radical or dramatic moments of thought, particularly, *a fortiori*, of contemporary thought," in Julia Kristeva (1983, 83).

negation of structural determination *per se*, which is to say, it is shaped into an entirely self-determining, self-autonomous entity.[17] Yet,

> while everyone may be entitled to his or her own private space, only those who have enough money can, in fact, afford to purchase the private property required to 'do their own thing.' As a consequence, economic inequalities necessarily delimit our individual 'rights' to self-fulfillment.... The tolerance for various values and 'lifestyles' so notable in Brian Palmer's suburban Silicon Valley is helped along by real estate prices (averaging well over $100,000 per house in the early 1980s) that exclude all but the upper middle class from buying homes there. Their livelihood does not hinge on their communal loyalties or local respectability, but on their technical skills, certified by university degrees and measured by the profit-accounting of corporations.... [The] separate [read: self-autonomous/self-determining] self, in short, is socially located on private property that is marked off from the public sphere but depends entirely on the institutional structure of the society at large for its apparent freedoms (Bellah 2001, 310).

Likewise, in considering subjectivity and, by extension, the Self as self-determining agencies — which is to say, negations of structural determination *per se* — poststructural commentary standardizes all manner of cultural practice and ideation (and, again, precisely as it claims structuralism did so egregiously before). The primary complaint launched against structuralism by self-identifying poststructuralists is that structuralist interpretations of cultures, cultural practices and cultural artifacts tend "to fix [the] proliferation of meaning" such that those "spaces of social

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[17] That being said, this account does claim to allow for determination via speakers's "social situations." However, given that it self-consciously lacks a concept of "totality," no broader structural determinations are furnished by poststructuralism to provide a *material basis* for "social situatedness," which leaves only an abstract particularity, something like "the social itself," as a basis for behavior.

contestation," those "texts," which people make and receive under the auspices of cultural practice become equated with only one or two possible "readings" or "habitations" (Foucault 1984, 118). While it is a great achievement of poststructuralism to have clarified that there are, indeed, numerous ways to "inhabit" the "social space" of a "text" — and, furthermore, that analyses which concern themselves with these "habitations" should have an equal say in knowledge production as do those concerned with such "habitations" *and* the broader structural determinations which enable a "text" to exist and to be multiply "inhabited" in the first instance — the critique ultimately does precisely what it sets out not to.[18] Specifically, it standardizes all manner of cultural practice and ideation as standard in its defiance of standardization (often referred to as "undecidability"). In fact, according to the poststructural *Weltenschauung*:

> *Every* text is undecidable in that it conceals conflicts within it between different authorial voices — sometimes termed text and subtext(s). *Every* text is a contested terrain in the sense that what it appears to 'say' on the surface cannot be understood without reference to the concealments and contextualizations of meaning going on simultaneously to mark the text's significance (e.g. the use of specialized jargon). These concealments and contextualizations might be viewed as the assumptions that *every* text makes in presuming that it will be understood. But these assumptions are suppressed, and thus the reader's attention is diverted from them (Agger 1991: 112, my emphasis).

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[18] For a good example of a study which analyzes "texts," "habitations" and the broader structural determinations which enable a "text" to exist and to be multiply "inhabited" in the first instance, see Karl Marx and Friedrich Engels, *The German Ideology*. (New York: Prometheus Books, 1998).

Finally, then, poststructuralism is guilty of maintaining its own "paradoxical origins," of taking certain foundational premises of its own on faith. It holds as its central tenets that (i) if any structure is seen to underpin, enclose or prescribe human behavior, it shall be seen to do so only in the eyes of the beholder, and (ii) observing structure shall be understood to say more about who observes it, than who or what they observe. Consequently, as Terry Eagleton explains, it becomes:

> Culture, not God or Nature, which is the foundation of the world. It is not, to be sure, all that stable a foundation, since cultures change, and there are many varieties of them. But while we are actually inside a culture we cannot peer outside it, so that it feels like as much of a foundation as Reason did to Hegel. Indeed, what we would see if we could peer beyond it would itself be determined by the culture. Culture, then, is a bumpy kind of bottom line, but it is a bottom line all the same. It goes all the way down. Instead of doing what comes naturally, we do what comes culturally. Instead of following Nature, we follow Culture. Culture is a set of spontaneous habits so deep that we can't even examine them. And this, among other things, conveniently isolates them from criticism (Eagleton 2003, 58-59).

These core "pretenses" find expression in current commentary on Recording Practice as a singular focus upon the *sound* of music recordings, and upon how that sound encourages — if not *compels* — record receivers to access and deploy particular musical competencies, whether "sedimented" or "subversive." Recording Practice emerges, in turn, as one of many Coliseums of abstraction which are currently active in Western culture, wherein competing discourses duke it out for dominance. This is, in the end, an entirely idealistic view. One which overlooks the *act* of Recording Practice completely (i.e., those things that people must physically do with their sound reproduction technologies to make or hear record "content"). Given that what's done by Recording Practice is actually done by using sound reproduction technology, the

"text" of Recording Practice must be the *physical behavior* of using such technology for musical purposes before, and while, it is anything else. And poststructuralism simply cannot grasp this *fact*.

Furthermore, while so-called "poststructuralisms" are typically deployed by theorists of Recording Practice to counter "technological determinisms," which is the name currently given to any perspective of technology that garners for it social efficacy, this is only ever done in the service of constituting yet another such "determinism." It is, of course, agreed that something called "sound reproduction technology" exists. Analysts inclined towards genuinely poststructural interpretations of music technology simply claim that technology is neutral and, thus, that "technological determinism" garners for it *too much* efficacy.

Put simply, claiming technology as neutral nonetheless grants it social efficacy. That is, the claim that technology is "neutral" is "technological determinism" in culturalist guise. This perspective claims technology as some *thing* which, by its nature, "extends"/ "prostheticizes" singular human ingenuity and sense into unprecedented multiplicities — which is to say, it claims technology as archetypically prosthetic — when even prosthetic devices, from spectacles to plastic limbs, enable and, in so doing, *determine* a range of behaviors which simply could not obtain in their absence. Those who reject "technological determinism" in this manner nevertheless agree, then, that "we make machines for our own ends," as Timothy Taylor proclaims, but precisely as we are (re)made by them (Taylor 2001, 14).

The different ways that cultures produce and use technology constitute different ways of *accommodating* the determining efficacies and agencies which each technology is built to embody, not proof that such efficacies and agencies are only the figment of analysts's imaginations. Indeed, the fact that Americans and Scandinavians, for

instance, react differently to the threat of nuclear war doesn't negate that, in so doing, both cultures react to that same nuclear holocaust which nuclear warheads are built to manufacture, *regardless of who specifically deploys them*. However, when such accommodation is mistaken for determination, as happens here, "convention" and "arbitrariness" are taken aprioristically to mean "without substance," "sheer randomness" or "chaos." In light of such reasoning, one might simply wonder how Recording Practice is done, then, if not by capitalizing on what sound reproduction technology can be made to do in a particular manner that makes sense given a particular social circumstance? Or, more fundamentally, what, then, *is* sound reproduction technology?

Victor Markets the "Incomplete" Perspective.

The association between Recording Practice and "Live"/"Concert" exchange, which the "incomplete"/poststructural perspective on music technology *assumes*, simply did not exist on a widespread scale in the West until a good three decades after Edison unveiled his phonograph at the offices of *Scientific American* in 1877. First, this perspective had to be propagated to a largely disbelieving public through the marketing efforts of North American record companies such as, most prominently, The Victor Talking Machine Company.

Even in 1904, North American record labels were faced with a general consensus that their wares were mere novelties — and, for many, annoying novelties at that — despite sales in the thousands for certain music recordings on their rosters. The following harangue, published by *The Daily Forward* in 1904, is typical. Headed "The Victrola Season Has Begun," the editorial's anonymous author, whose tongue, it should be noted, is obviously planted firmly in cheek, goes so far as to cast all the

world's Victrolas as something like a plague of sonic locusts (sounding much like Theodor W. Adorno all the while):

> God sent us the Victrola, and you can't get away from it, unless you run to the park. As if we didn't have enough problems with cockroaches and children practicing the piano next door.... It's everywhere, this Victrola: in the tenements, the restaurants, the ice-cream parlors, the candy stores. You lock your door at night and are safe from burglars, but not from the Victrola (cited in Starr and Waterman 2003, 37).

Though it is unclear whether or not public sentiment exactly mirrored *The Daily Forward*'s ironic — though nevertheless protestant — stance towards the Victrola, there was, by most accounts, a great deal of at least "incredulity" towards "talking machines" in the public mind. As Lisa Gitelman notes, while, during so-called "novelty demonstrations" of the Edison phonograph throughout the last two decades of the nineteenth century, there were certainly those in the audience who "greeted the phonograph with.... enthusiasm," more seem to have greeted it with a healthy dose of :

> Skepticism. On the one hand, [crowds] marveled at the unprecedented phenomenon of recorded sound (a machine that speaks!). Many, however, felt disappointment when, after all hyperbolic rhetoric surrounding the device, the early, imperfect phonograph produced only faint sounds obscured by scratchy surface noise (Gitelman 2003, 157).

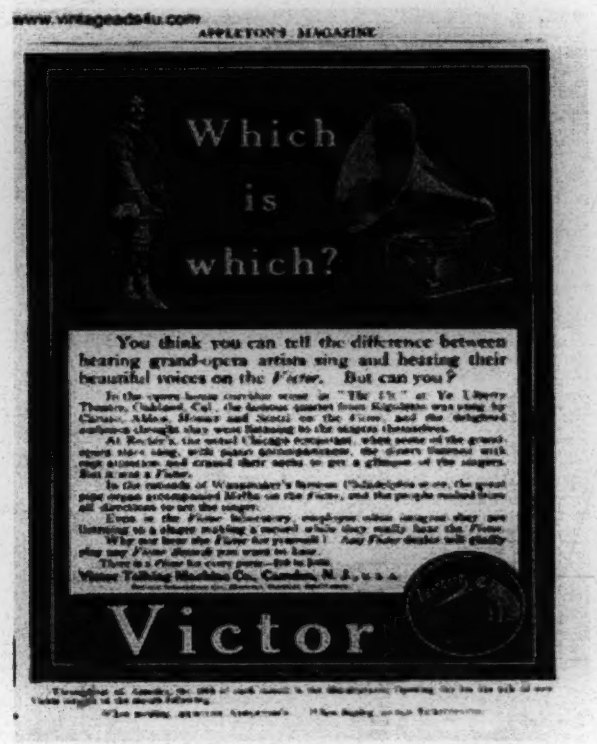
Most famously, Victor found a palliative for this "incredulity" in the likeness of Enrico Caruso. The same year *The Daily Forward* published its anti-Victrola diatribe, in 1904, producer C. G. Childs signed Caruso to an exclusive endorsement deal. The new "jewel in Victor's crown" which Caruso presented paid off handsomely. Already admired for his musical prowess, Caruso furnished Victor with a specifically "musical" prestige and, in so doing, with a valuable figurehead through which to propagate the

technical superiority of their brand of sound reproduction technology and the primacy of specifically "musical" experience which that technology afforded. In doing all this, Caruso also lent Victor's sound reproduction technologies a certain familiarity, serving as a visual analog for what Victor sought to conjoin conceptually (i.e., sound reproduction technology and musical experience) rather than as simply a popular opera singer who endorsed their wares.

"Which is which?" an ad for Victor brand "talking machines," published in 1904, challenges. On either side, a gramophone is exaggerated to human size next to a photograph of Enrico Caruso in full operatic garb. The ad continues:

> You *think* you can tell the difference between hearing grand-opera artists sing and hearing their beautiful voices on the Victor. But can you? At Rectors, the noted Chicago restaurant.... the diners listened with rapt attention and craned their necks to get a glimpse of the singers. But it was a Victor! In the rotunda of Wannamaker's famous Philadelphia store, the great pipe organ accompanied Melba on the Victor, and the people rushed from all directions to see the singer! Even in the Victor laboratory, employees often think they are listening to a singer making a record while they really hear the Victor! Why not hear the Victor yourself?

Figure 2. "Which Is Which?" (1904), Archives Center, National Museum of American History, Smithsonian Institution.


APPLETON'S MAGAZINE
Which is which?
You think you can tell the difference between hearing grand-opera artists sing and hearing their beautiful voices on the Victor. But can you?
Victor

Victor would continue this challenge throughout the next decade. An ad published in 1908, in *The Theatre Magazine*, for example, uses the exact same visual imagery as with Caruso's advertisement from four years prior, but with soprano Luisa Tetrazzini in Caruso's place. "Which is which?" the caption again demands. "You *think* you can tell the difference between hearing grand-opera artists sing and hearing their beautiful voices on the *Victor*. But can you?" A list of astounding occurrences

involving Victor brand sound reproduction technologies are once more inventoried below, including a playful deception which allegedly occurred

> every day at the Waldorf-Astoria, New York. The grand-opera artists sing, accompanied by the hotel orchestra.... The diners listen with rapt attention, craning their necks to get a glimpse of the singer. But it is a *Victor*!

Those who read the Caruso ad from 1904 would recognize this as the very thing which had happened at Rector's, in Chicago, four years before.

Figure 3. "Which Is Which?" (1908), Archives Center, National Museum of American History, Smithsonian Institution.

Which
is
which?
You think you can tell the difference between hearing grand-opera artists sing and hearing their beautiful voices on the Victor. But can you?
Victor Talking Machine Co., Camden, N.J., U.S.A.
Victor

Another ad, published by Victor in 1912, presents a different slant on this same challenge. Citing the death of singer Jenny Lind as a loss to "music" *per se*, Victor presents its brand of sound reproduction technology as a means for Western musical culture to soften the blow of such losses, as it were. The ad features a sketch of Jenny Lind singing at the Castle Garden in 1851. "All that remains of Jenny Lind is her autograph, her picture, and memories dear to all who ever heard her sing," Victor laments in the caption below.

> Her greatest charm — her wondrously sweet and melodious voice — is gone forever. How different had she lived in the present day! The *Victor* would have preserved her beautiful voice to posterity, just as it.... does the other great singers of the world. You can hear them to-day on the *Victor* whenever you like; and generation after generation will keep on hearing them though the artists themselves will be forever silent. You *owe* it to yourself to stop in and hear the *Victor*.

Figure 4. "What A Loss" (1912), Archives Center, National Museum of American History, Smithsonian Institution.

In a 1910 issue of *Glidden Magazine*, Victor would go even further in propagating this "incomplete" perspective on Recording Practice, though using a somewhat less confrontational tone. Featuring a drawing of the entire roster of Victor's spokespersons at the time, in full operatic garb and presumably on stage for a curtain call, Victor claims to "extend" or prostheticize the 1910 opera season beyond its yearly coda. "The opera season closes," the ad reads,

> but the opera continues on the Victor. Though the opera season is over, and the stars of the Metropolitan and Manhattan have gone abroad, you can still hear them sing their greatest triumphs on the Victor. Caruso, Dalvé, Dalmores, Eames, Parra, Gadski, Gerville-Réache, Homer, Journett, McCormack, Melba, Plançon, Schumamo-Heink, Scotti.... Tetrazzini and Zerola are among the world's greatest artists who make records exclusively for the Victor. They not only sing solos and duets for you, but such famous concerted numbers as the Sextet from Lucia, the Quintent from the Meistersinger, the Quartet from Rigoletto.... Hear this beautiful Victor music at the nearest Victor dealer.

Figure 5. "The Opera Season Closes...." (1910), Archives Center, National Museum of American History, Smithsonian Institution.

By 1913, Victor had adopted this new, less confrontational tone as its marketing *modus operandi*. In an issue of *Good Housekeeping Magazine — The Home Directory*, for example, published in 1913, a photograph of Blanche Ring takes up the entire right side of an ad, while the company's wares figure visually only in conjunction with their newly developed logo: "little Nipper," the dog. "You'll enjoy the song hits which this famous comedienne introduced to the public — the big hits which not only brought her rounds of applause but made the songs popular," the ad reads. "No one has ever sung them — no one could sing them — like Blanche Ring.... just drop into any Victor dealer, and he will gladly play these and other records made by.... Victor."

Figure 6. "Hear Blanche Ring" (1913), Archives Center, National Museum of American History, Smithsonian Institution.

In another typical ad from this time, published in 1914, Geraldine Farrar simply sits comfortably next to a Victrola, listening to herself as "Mme. Butterfly," lost in what Marshall McLuhan would later call "the Narcissus trance" of humanity "hypnotized" by its mechanized "extensions." "Great" singers, even, find the musical experience which Victor affords pleasing (or, at the very least, worthy of attention), the image implies. In the caption, Victor simply *asserts*, specifically, that

> you can hear Miss Farrar just as she hears herself and to hear her on the Victrola is just the same as hearing her on the operatic or concert stage. The same sweet voice, with all the personal charm and individuality of the artist, as clear and beautiful on the Victrola as in real life. So perfect that Miss Farrar herself has said: 'Friends may admire, critics praise or condemn, but the Victor in its records decides with unprejudiced fidelity.' Any Victor dealer in the world will gladly play you this charming "Mme. Butterfly."

Figure 7. "Geraldine Farrar Listening to Herself" (1914), Library of Congress, Recorded Sound Reference Center, American Women Resource Guide.

In these and other ads of this time, Victor ultimately figured its wares as "extensions" of extant musical culture, as means of conveying rather than enacting, of doing — and, in doing, of conserving — musical communications as done before. Consequently, by 1914, "it was no longer necessary to have any musical ability whatsoever to recreate the sound of music," as Reebee Garofolo notes, at least not according to Victor (Garofolo 2002, 19). What was required instead of musical competence was technological competence, the ability to work a particular kind of communications machine. And it was this figuring of musical competence as technological competence, this association of consuming sound reproduction technology with "doing" musical communications (as done before), which was required before Recording Practice could finally begin to thrive. By now, this association constitutes an empirical fact of musical modernity, a cultural accommodation of sound reproduction technology once widely propagated in support of a certain corporate agenda *transformed* into an empirical condition of "music" — "lying in the guise of truth" become the truth (Zizek 1994, 8).

SECTION TWO

The "Media Ecology" Perspective: Oral Prosthetic vs. Industrial Object.

Still, not to be partisan, perhaps I should *confess* that Recording Practice is structured, and in the very manner which poststructuralism seeks directly to "expose" as an outmoded analytic "pretense." To clarify this structure, and its networked form, I will outline and elucidate a genuinely "media ecological" perspective on Recording

Practice. Before doing so, however, I shall first have to review what is meant by the perhaps cryptic sounding title "media ecology."

As an interpretive mode, media ecology is relatively new. It is a fifty year old product of, among others, Harold Adams Innis's, Herbert Marshall McLuhan's and Eric Havelock's work on media phenomenology at what is now called the Toronto School of Communications.[9] These writers were generally concerned with how a medium, to borrow McLuhan's terms, "amplifies" and "amputates" its users' capacities to perceive. In other words, they were concerned with understanding how typographic print, for instance, "amplifies" the eye to the point of ocularcentrism, which is an always happening marginalization ("amputation") of the voice and ear that makes of the world something which must exist as massively reproducible visual code to be believed. Through such "sensory privileges," they ultimately agreed, media themselves constitute a primary influence over how a culture configures itself as a corporation of Selfs characterized by some shared communicative recourse to an object world.

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[9] Foundational texts of "media ecology," particularly those associated with its "Toronto School" origins, include, in alphabetical order, Eric Havelock, *The Muse Learns to Write: Reflections on Orality and Literacy from Antiquity to Present.* (New Jersey: Prentice Hall, 1988); Harold Adams Innis, *Empire and Communications.* (Toronto: University of Toronto Press, 1951); Harold Adams Innis, *The Bias of Communications,* (Toronto: University of Toronto Press, 1951); Marshall McLuhan, *The Mechanical Bride: The Folklore of Industrial Man.* (New York: Vanguard, 1951); Marshall McLuhan,*The Gutenberg Galaxy: The Making of Typographic Man.* (Toronto: University of Toronto Press, 1962); Marshal McLuhan, *Understanding Media: The Extensions of Man.* (Cambridge: MIT Press, 1964); Marshall McLuhan, *The Medium is the Massage: An Inventory of Effects,* with Quentin Fiore, Produced by Jerome Angel. (New York: Bantam, 1967) and Marshall McLuhan, *War and Peace in the Global Village,* with Quenten Fiore, Produced by Jerome Angel. (New York: Bantam, 1968).

Though it is now chiefly considered the very height of "technological determinism," Marshall McLuhan's dictum that "the medium is the message" says, fundamentally, nothing more (McLuhan 1964, 7). It says, that is, that to communicate by, again, typographic print, for instance, is to restrict one's discursive agency to that inventory of communicable terms which typography itself enables — to creating patterns from the puzzle pieces which typography itself provides to construe meaning(s). This is not, as is often claimed, a truism, so much as it is an acknowledgment of limitations. McLuhan held that not just anything can be communicated by a medium, nor anywhere but in its physical presence. Communicating by the media is, then, most fundamentally, constructing and inhabiting particular environments. Media Ecology is simply the title given to study of these environments.

Moreover, to take the medium as "the message" is *not* to erase people and culture from analysis, though, today, the opposite is most often argued to be the case. Every medium is literally an "extension" of some human ingenuity and/or sense beyond the body, according to the dictum. Through "extension," such ingenuity and/or sense is shaped into a technique, or a regimented "way of doing," which humans simply lack the physical resources to do exactly the same. Consider, for instance, the sound reproduction medium. According to media ecology, this medium is literally an extra-corporeal "extension" of what functioning human ears do to "hear" sound (specifically, convert acoustic energy into movements of the scilla hairs) into the industrial technique of "transduction," which, again, means converting one kind of energy into another kind of energy. As one among many possible "ways of doing" transduction, the sound reproduction medium is objectified by all the world's sound reproduction technologies. Thus, the medium is "the message" because the material properties of sound reproduction technology determine how people may ever take recourse to the sound

reproduction medium in the first instance. That is, the medium is "the message," and not what it is used to say, because the latter is always a function of manufacturing, distributing and having recourse to sound reproduction technology to begin with.

Indeed, "all media are active metaphors in their powers to translate human experience into new *forms*" (McLuhan 1964, 17; my emphasis). In fact, McLuhan understood communications *per se* as a product of taking recourse to media, which is to say, something that people cooperatively manufacture by manipulating one or another medium's "object forms." As Friedrich Kittler explains, "media are always already ahead of aesthetics" because "technologically possible manipulations determine.... what can become discourse" (Kittler 1999, 232). From this perspective, pressing the "play" button on a stereo is the communicative act in record reception, as is configuring a stereo's balance, pressing the "stop" button midway through playback, "seeking" from one track to the next, etcetera. Any "contents" which are thereby made or heard are significant, to be sure, but only as products of operating sound reproduction technology. To treat record "content" as the whole story with regards to Recording Practice — to neglect that the medium is "the message" — is thus to treat the product of a process as though it were the process itself.

Media Ecology As Dialectic: We Make As We Are (Re)Made By Media.

The dialectic of mechanization which McLuhan constructs is clear. According to McLuhan, we make as we are (re)made by media. Then, subsequently (re)made, we "amplify" or "amputate" some newly "amplified" or "amputated" aspect of ourselves still more whenever we make, or communicate using, new media. The process begins when humanity makes its first medium, and terminates when humanity finally fails to reproduce itself.

Commentators chiefly overlook or misunderstand this dialectic. They read that McLuhan understood the medium as "the message," neglect that this was only the case for McLuhan "in operational and practical fact," and lunge straight for the theoretical jugular. In so doing, commentators almost unanimously conclude that McLuhan understood the past, present and future condition of humanity as always, from the very first, "technologically determined." Yet, according to McLuhan, "such a condition would necessarily be an extension of our own consciousness as much as wheel is an extension of feet in rotation," which is to say, media and culture exist in a relation of *mutual* determination in McLuhan's account (McLuhan 1967, 26).

Nonetheless, McLuhan's dialectic of mechanization might be rearticulated to suit the present theoretical sensibility of North American human studies, such that those of its features which distinguish it from what is now most often called "technological determinism" become readily apparent.[20] First, according to McLuhan, each medium should be understood to construe a material epistemology by way of the sensory privileges it construes. That is, each medium should be understood to make

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[20] For further discussion of the presently contentious position of "technological determinism," as an analytic bias, in commentary of specifically Western culture, see, for example, Merrit Roe Smith, "Technological Determinism in American Culture," *Does Technology Drive History? The Dilemma of Technological Determinism*, eds. Merrit Roe Smith and Leo Marx. (Cambridge: MIT Press, 1994), pp. 1-36; Robert L. Heilbroner, "Technological Determinism Revisited," *Does Technology Drive History? The Dilemma of Technological Determinism*, eds. Merrit Roe Smith and Leo Marx. (Cambridge: MIT Press, 1994), pp. 79-100; Richard W. Bulliet, "Determinism and Pre-Industrial Technology," *Does Technology Drive History? The Dilemma of Technological Determinism*, eds. Merrit Roe Smith and Leo Marx. (Cambridge: MIT Press, 1994), pp. 201-216; Leo Marx, "The Idea of 'Technology' and Postmodern Pessimism," *Does Technology Drive History? The Dilemma of Technological Determinism*, eds. Merrit Roe Smith and Leo Marx. (Cambridge: MIT Press, 1994), pp. 237-258.

both "a physical environment and a way of perceiving that environment" (Thompson 2003, 1). In so doing, each medium evokes in its users a way of perceiving a "world" which is of its own making and, thus, which offers to its users only a limited set of possibilities for taking recourse to and shaping that "world."

Ultimately, according to McLuhan, media make "worlds" that exist only in the material presence of, and only by exploiting, a particular variety of technology. Media thus emerge as the historically situated products of what they concomitantly produce, namely, human ingenuity and sense *skewed* towards one manner of constructing, considering, inhabiting and having recourse to a scare-quoted "world" which is only comprehensible by that medium, at the expense of any other possibilities. What results is a determination of technology just as it is a product of human uses for technology, which is to say, dialectic.

The Network of Recording Practice.

Media do not simply determine how people communicate, however. They also determine what people can say and receive in so doing. As noted, humanity simply lacks the physical resources to transduce how Recording Practice requires. Thus, making and hearing music recordings is always doing something that the "naked" or untechnologized voice and ear cannot. As transduction "amplifies" the technologized voice and ear, and as it "amputates" the untechnologized voice and ear, those who make and hear music recordings find certain of their communicative agencies "amputated" alongside. What's cutoff from them is the capacity to render their untransduced musical communications socially useful, at least in relation to Recording Practice. Their communicative agency is fundamentally structured by the sound

reproduction medium, especially in opposition to those "contents" which are impossible to en/decode by transduction such as, most obviously, "sound production."

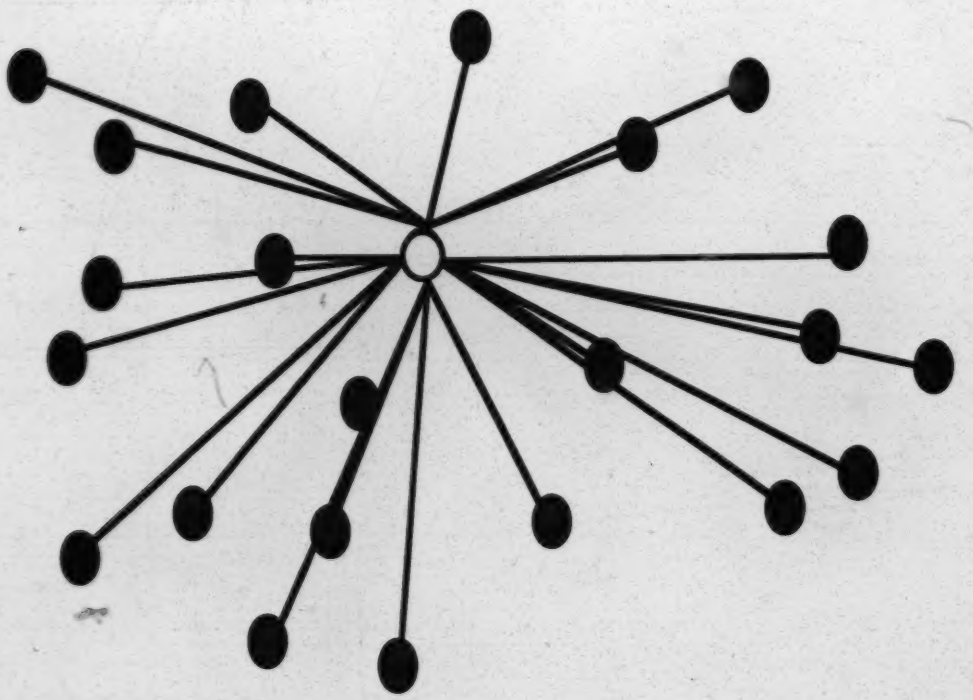
As such, making and hearing music recordings is structured by what sound reproduction technology is capable of (namely, transducing) and what it is capable of perceiving (namely, data configured somehow). To transduce a sculpture of acoustic energy into a sculpture of another kind of energy — to convert sound into, say, mechanical, electric, electromagnetic or digital code — and, in so doing, to make a music recording, one must use a transducer(s) which converts acoustic energy into mechanical, electric, electromagnetic or digital energy. Conversely, anyone who hears such a recording must use a transducer which is capable of converting sculptures of mechanical, electric, electromagnetic or digital energy into sculptures of acoustic energy. Indeed, from the perspective of media ecology, Recording Practice *is* transducing, just as it is a manner of considering transduction musically useful — no more, no less.

As one among many possible "ways of doing" transduction, Recording Practice is predicated in its entirety upon production and reception of prototypes. That is, Recording Practice simply cannot furnish a 1:1 relation between "sender(s)" and "receiver(s)." Rather, a $1:1^n$ relation must obtain, where:

> (i) 1 is a particular configuration of mechanical, electric, electromagnetic or digital data (i.e., a prototype); and
>
> (ii) 1^n is a multiple instance of 1, which is characterized by a potential for never being heard (i.e., actualized/transduced as the sonic phenomenon it represents).

I have schematized this relation in the figure below such that the prototype, O or 1, forms the core of a "small-world" network which maintains a $1{:}1^n$ relation with as many multiple instances (1^n, or ●, in the figure below) as the prototype is exploited to manufacture.

Figure 8. Diagrammatic rendering of the ontic relation between prototype and multiple instance in Recording Practice.



Accordingly, each record reception must actualize a $1^{(n)n}{:}1^{n}(:1)$ relation between:

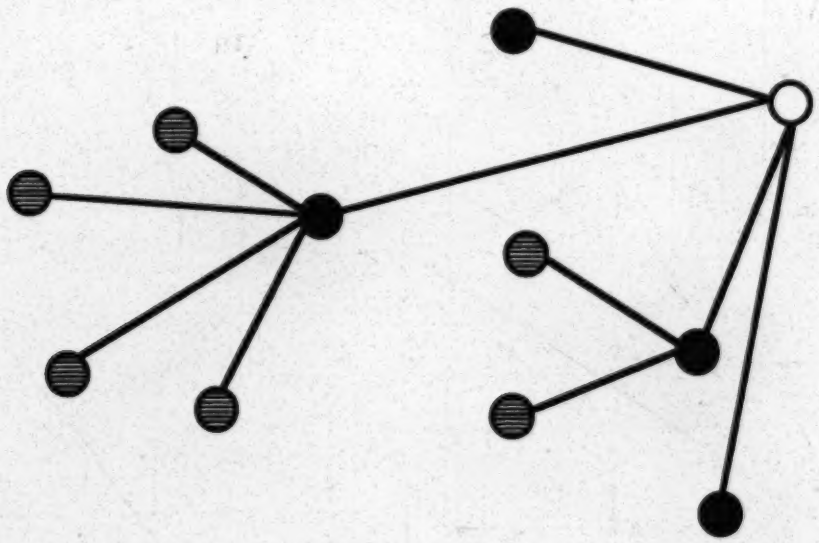
(i) a prototype (i.e., (:1));

(ii) the multiple instance of a prototype which record receivers exploit to undertake record reception (in this case, $1^{n}(:1)$); and

(iii) the sonic phenomenon as which the multiple instance is transduced during and by any particular record reception, which record receivers shape by using particular sound reproduction technologies configured to transduce somehow (i.e., $1^{(n)n}{:}1^{n}(:1)$).

I have added this relation to the "small-world" network of Recording Practice below, representing each *particular* record reception by the symbol . That more than one of these symbols appears connected to each multiple instance acknowledges that every record reception may potentially sound different (i.e., the bass may be "boosted" or "cut," the song may be "stopped" midway through, etc.), even as it maintains the exact same recursive relation to the exact same prototype in operational and practical fact. That this symbol does not appear in relation to every multiple instance acknowledges that a music recording might never be transduced.

Figure 9. Diagrammatic rendering of the ontic relation between record reception, multiple instance and prototype in Recording Practice.

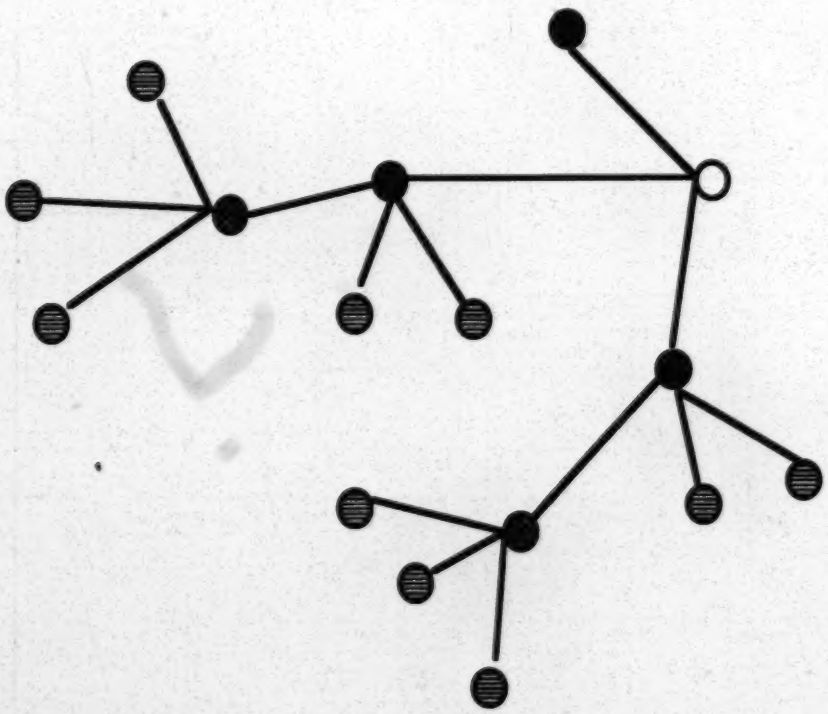


I should also add that so-called "copy culture" does not in any manner alter the recursive relation of multiple instance to prototype which defines record reception. Exploiting so-called "blank" storage media — i.e., "blank" audio cassettes, CDRs and "ripping" software, etcetera — record receivers copy sculptures of mechanical, electromagnetic or digital code which are identical to the prototypes that record innovators must make for there ever to be musical exploitation of "blank" storage media, even if a certain amount of so-called "sound fidelity" is lost in the process.

In short, record reception by "blank" storage media nevertheless constitutes a $1^{(n)n}{:}1^{n}(:1)$ relation from record reception to prototype, as does any record reception. Thus, in the diagram below, the symbol ●, which represents a multiple instance of a

multiple instance of a prototype "copied" onto some "blank" storage medium, is added to certain branches of the "small-world" network to visually represent the processual sameness of record receptions which occur through (i) multiple instances of a prototype and (ii) multiple instances of multiple instances of a prototype (i.e., through "copies" of commercially distributed music recordings).

Figure 10. Diagrammatic rendering of the ontic relation between prototype and multiple instance in Recording Practice, where there are both multiple instances made directly from the prototype and multiple instances made from multiple instances.



Clearly, then, media ecology construes a music recording which contrasts sharply with the oral prosthetic that the "incomplete" and poststructural perspectives on Recording Practice construe. According to media ecology, making and hearing music recordings is properly "ecological" because it can only be done by means of a kind of transducer (i.e., sound reproduction technology) and, as such, only in the physical presence of such transducers. The so-called "environment" of Recording Practice thus obtains only wherever and, crucially, *whenever* sound reproduction technology, including music recordings, is given some musical use. Music recordings collaterally emerges as inherently silent data storehouses which record innovators configure to represent sound awaiting a future transduction, and which, given such a transduction, produce the communications environment of Recording Practice. However, music recordings and stereo systems only enable this environment. Nothing guarantees that the data which a music recording stores will sound, because nothing guarantees that the music recording which stores it will be transduced.

SECTION THREE

Precedents of the Network of Recording Practice: "Technical Linkage."

Something must work to ensure that the environment of Recording Practice remains at all times musical. That is, there must be the very kind of "paradoxical origin" within the network of Recording Practice which, as I noted in Section 1, poststructuralism seeks directly to "expose" as an analytic "pretense" endemic to structuralism, and which ensures that the material presence of sound reproduction

technology always at least potentializes some kind of musical experience. This "paradoxical origin" is "technical linkage," or, the manufacture of distinct, fragmented generations of technology which only do what they are supposed to when combined with other "technically linked" technologies. Consider, for example, a Nintendo gaming console. The console simply does not work as a console unless Nintendo brand video game cartridges are embedded within it. Thus, console and cartridges are "technically linked," and playing video games by Nintendo brand technologies only proceeds by — in fact, *enacts* — technical linkage. Also, for example, cameras, cinema projectors, cable televisions, radios, computers and automobiles, each depend upon users embedding certain "technically linked" particles to operate (i.e., film, celluloid movie reels, digital code and cable wires, electromagnetic waves and broadcast transmitters and receivers, software and cables for internet access, car keys, gas, etc.).

On the broadest level, technical linkage constitutes a certain relation between objects, just as it is a means of manufacturing that relation (i.e., a kind of transformation). An argument could be made, of course, that technical linkage is equally endemic to, say, feudal or artisanal production as it is to industrial production. A handmade lute, for instance, depends upon (perhaps handmade) strings, which is to say, on some level, that lute and strings are "technically linked." Likewise, clay tablets depend upon scribes to impress cuneiform into them and, as such, clay tablets, scribes and cuneiform are "technically linked"; fountain pens are "technically linked" with ink and parchment to enable writing; oration is "technically linked" with language and audience; Gideon Bibles are "technically linked" with ink, pulp and the printing press; and so on. However, this neglects the transformational aspect of technical linkage, and its specificity as a shaping practice under conditions of specifically industrial capitalism. To understand these two aspects of technical linkage, the broader relation between, for

my purposes, artisanal and industrial production must first be considered. As Karl Marx notes,

> like every other increase in the productiveness of labour, machinery is intended to cheapen commodities and, by shortening that portion of the working-day in which the labourer works for himself, to lengthen the other portion that he gives, without an equivalent, to the capitalist. In short, it is a means for producing surplus-value.... Our first inquiry, then, is how the instruments of labour are converted from tools into machines, or what is the difference between a machine and the implements of handicraft? (Marx 1978, 403).

Helpfully, at least in relation to the question Marx poses above, Ursula M. Franklin identifies two distinct kinds of technology. The first, which Franklin terms "holistic technology," corresponds with Marx's "implements of handicraft" (Franklin 1999, 10). They are, in short, technologies which require the input of their users to shape and build any artifacts as are made by them (i.e., horseshoes, vases, etc.). The second kind, which Franklin terms "prescriptive technology," corresponds with Marx's notion of "machines." "Machines," or "prescriptive technologies," mandate, in Franklin's words, "specialization by process," being agencies of specifically industrial mass-production which do not require human input except for their invention, maintenance and operation (Franklin 1999, 10). Which is simply to say that "tools" and "machines" are, themselves, social relations, or "combinations of labour," already before anybody takes recourse to them; that the difference between a "tool" and a "machine" is the same difference between, respectively, artisanal and industrial production *as social totalities*.

Indeed, "machines" are not simply mechanized "tools" but, rather, specifically industrial-capitalist relations of production and consumption given industrial embodiment as "machines." There must be, then, industrial production before there

can be technical linkage, even while it is only *through* technical linkage that this transformation transpires. Considered in these terms, Recording Practice emerges as a specifically industrial-capitalist mode of musical communication which is predicated in its entirety upon technical linkage. That is, Recording Practice emerges as *being*, as opposed to as only *having been*, "technically linked." Though this may seem like (optimistically) "clever" wordplay, the difference between technical linkage as a verb (i.e., as a process of industrialization) and as a noun (i.e., as industrial-capitalist production *per se*) is an important distinction to make. Only in grasping Recording Practice in terms of the latter does it become fully apparent that this mode of musical communication is not only "involved in" but, in fact, *is* industrial-capitalist production *per se*.

As industrial-capitalist production, technical linkage exerts an enormous influence over how musical communications transpires and, thus, over what musical "contents" participants may ever endeavor to communicate. In Henry Klumpenhouwer's words,

> the most common modes of fragmentation under capitalism involve taking activities and relationships previously integrated, fragmenting them, and plundering their fractions for commodifiable elements. In this sense, various reforms of concert-hall practice in the mid-nineteenth century do not simply represent a shift in aesthetic attitude that reflected an increasingly serious disposition toward art among romantic critics and writers. They also go a long way toward "desocializing" the experience of listening to music: almost all the changes brought about in the concert-hall — lowered house lights, the injunction to listen seriously, which is to say, quietly and attentively — serve to fragment the audience into isolated individuals and to create the impression of a purely "musical" experience as opposed to a social one (Klumpenhouwer 1998, 295-296).

With Recording Practice, this already fragmented and "desocialized" musical intercourse is even more intensely fragmented and "plundered" for its commodifiable constituents. Everything in Recording Practice is "technically linked," from the sonic phenomena which the makers of music recordings create to the act of hearing those phenomena, which only occurs through proper consumption of music recordings and stereo systems in combination. Finally, then, technical linkage *ensures* that those operations of sound reproduction technology which occur as part of record innovation cannot become properly "musical" without those operations of sound reproduction technology which occur as part of record reception, and vice versa, which is to say, that "music" may never take place but within the confines of industrial-capitalism.

Ultimately, then, from the perspective of "media ecology" at least, Recording Practice elevates a particular manner of manufacturing a certain commodity relation (i.e., technical linkage) to the status of a creative, properly "musical" activity. As noted, this simply cannot be done without transducers, and transducers made for purposes of record reception are manufactured to lack music recordings such that they remain inoperative but for their insertion. In which case, record innovation is, most fundamentally, manufacture of missing components of stereo systems, while record reception is, most fundamentally, consumption of musical communications *as* missing components of stereo systems. In the final analysis, those who make and hear music recordings have no choice but to do this — that is, they have no choice but to enact technical linkage — before and while their musical communications finally reach fruition as sound.

Figure 11. The manufactured "lack" in compact disc (digital) generations of sound reproduction technology, from www.rentacenter.com/ Category/stereos.jpg (last accessed 16/4/2005).

Ambient Alienation: Hearing Technical Linkage, Hearing Interior Design.

To my mind, this is clearest in the genre of ambient music. Meant to be, in Brian Eno's words, "as interesting as it is ignorable," ambient musical practice advertises itself to potential listeners as a music genre which is ideally suited to the environment of Recording Practice that transduction makes (Eno 1978, 1). Manufactured specifically for purposes of record reception, properly ambient music recordings posit no more "authentic" a spatial deployment than whichever site of record reception they happen to be transduced to instantiate and, at the same time, to decorate with transduced sound. As Eno explains, "the goal of *all* ambient recordings is

to instantiate space" (Eno 1978, 1). What Eno fails to mention is that this may only occur if sound reproduction technology is present, a music recording is embedded within it, and both technologies are then operated in combination for purposes of record reception. After all, were Eno to concede this, he would also have to concede that every music recording is, most fundamentally, ambient.

What Eno leaves unsaid, then, is that every music recording openly depends upon "technical linkage" to exist as sound, that Recording Practice concretizes this specifically industrial procedure for manufacturing a particular kind of commodity relation between objects as, in the first instance, the only technique available for "doing" musical communications. As such, ambient musical practice openly assumes the existence of "media ecology" with regards to Recording Practice and, in so doing, interpolates certain of the strictures it levels upon musical communications as the basis for a particular kind of creativity. To be clear, though, every music recording must do this. Within the ambient genre, this assumption — i.e., that, as Adam Krims notes, music recordings can be made and used "for interior design" of any particular environment which houses sound reproduction technology — is *valorized* as an explicit goal of musical communications (Krims 2001, 211).

Consequences of the Network: Fundamental Complicities.

Without acknowledging the "ecology" of Recording Practice, a fundamental complicity eludes comment. This complicity finds material expression in Recording Practice through its elevation of technical linkage to the *only* technique available for "doing" musical communications. Indeed, if every record innovation is, most fundamentally, manufacture of missing components for stereo systems, or manufacture of missing softwares (i.e., MP3s, .wav files, etc.) for computerized sound reproduction

technologies (i.e., Rio MP3 players, iTunes and iPods, etc.), Recording Practice must be relations of production and consumption of sound reproduction technology only *skewed* towards musical purposes. Recording Practice can always be done with the volume off and with speakers disconnected or broken, after all, which is to say, Recording Practice can always be carried out in the absence of sound let alone "music." Music recordings thus emerge as "ways of doing" specifically musical communications such that sound itself becomes a product and locus of — and, yet, something entirely aside from — the commodity relation which Recording Practice finally configures.

Beyond this, a second layer of complicity emerges. Given its dependence upon technical linkage, record reception can only be done where one enjoys enough ownership over a particular physical location that they may alter its interior design, such that certain transduced sounds may be instantiated therein without reprisal. Because it is only in the space of record reception that data transduces as sound, because it is only there that those musical communications which Recording Practice names are "technically linked" to reach fruition, all communications as are its purview must comply with the dynamic of private property lest they be charged with some kind of sonic trespassing. (Even when record reception is undertaken alone via headphones, the dynamic of private property nonetheless figures. Use of headphones for purposes of record reception may allow a person to bypass any restrictions upon using sound reproduction technology for musical purposes which prevail in any given property, to be sure, but the dynamic is only thereby eluded, not negated.) Appropriate record reception, then, must always be complicitous with the social dynamic of private property on pain of punishment, which limits where one may communicate by sound reproduction technology — which, from a media ecological perspective, is *how* one may thereby communicate — in the first instance.

SECTION FOUR

Summary and Recommendations.

It is the control and limitation that I outline in this chapter which I find most notably missing from current commentary on Recording Practice. To my mind, it is missing because poststructural inquiry (and other variants of the "incomplete" or "Flat Earth" perspective on media) dominates present study of Recording Practice. This interpretive mode's foundational propositions conspire to render any properly structural restraint(s) upon musical communications invisible, if not *inconceivable*, which clearly hinges on a certain mystification of present circumstance. Perhaps the "paucity" which Théberge identifies constitutes a kind of apology for such limitation, then — assurance that, despite capital's best efforts, humanity may still exist voluntaristically independent of the stricture the former must routinely apply to secure its continuing authority (even if people must nonetheless participate in such stricture to do so). Whether or not this is the case deserves serious consideration, which I don't think poststructuralism enables. In fact, I would argue that it immediately assumes the question is flawed, and critics thereby assume the same by insisting upon the empirical correctness of a mode of knowledge production which very often refuses even just to acknowledge itself as such.

To rectify this "paucity" or "scarcity" — to achieve some kind of *critical* understanding of Recording Practice — analysts might finally heed, rather than summarily dismiss, Marshall McLuhan's call to study the medium as "the message," and shift their foci from "the what" to "the how" of communications, that is, from the *sound* of music recordings to the regimented uses for sound reproduction technology which Recording Practice requires. It is only through "the how" that "the what" comes

to be, in fact. Indeed, even if, as Susan McClary (2000, 65) contends, tonality "constructed musical analogs to such emergent ideals as rationality, individualism, progress and centered subjectivity" and, in so doing, "participated actively in shaping habits of thought on which the modern era depended"; even if, as Susan Fast (2001, 106) claims, "difference sits on the periphery, waiting to act, to be called on, to 'envelop,' to be redefined and absorbed into the culture of rock music, always on the borderline, always in a kind of identity crisis"; even if, in Lawrence Kramer's (2001, 8) words, "musical meaning consists of a specific, mutual interplay between musical experience and its contexts" — this can only be the case because those who are empowered to make "music" take recourse to certain object-forms of a certain medium which enables them to produce, organize and represent sculptures of a certain *matter* which gives worldly expression to such meta-significations as McClary, Fast, Kramer and a whole host of other musicologists lately elucidate.

Put simply, "music," let alone its capacity for semiosis, only exists because people take recourse to certain object-forms of a medium to sculpt a certain kind of matter into whatever it is that they think constitutes, or, perhaps, *should* constitute, "music." To grasp this, musicologists must begin to think about, and interpret, "the how" of music. Though I am very much aware of its current disrepute, media ecology nonetheless strikes me as the best way for musicologists to begin to come to terms with this "how," which is to say, sound reproduction technology in its material, historical specificity. Indeed, it is ultimately sound reproduction technology which seems to continually elude musicology's analytic grasp — which seems capable of materializing in current commentary on Recording Practice as only a conspicuous absence, a lack or a certain conventional(ized) "paucity."

What Is Sound Reproduction Technology?
McLuhan, Determinism, Transduction & Recording Practice

"Swingerisms."

Herbert Marshall McLuhan raised many worthwhile questions about the media. However, his name is now chiefly associated with that 1960s brand of naive "swingerisms" which Michael Myers recently caricatured as the parodic Austin Powers. Besides a few notable exceptions, when commentators acknowledge McLuhan they mostly treat his theorizations as just another long-since discarded fashion from that silly Age of Aquarius — *...love beads, LSD, Bagism, the Beatles, Beatle boots and Marshall McLuhan...* — still relevant, but only to the same degree as the bad acid which Wavy Gravy warned the Woodstock nation about.[21] As Michael Bliss so flippantly puts it, under the heading "False Prophet" in the May 1998 issue of *Saturday Night Magazine*:

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[21] For some of these "notable exceptions," see, for instance, Neil Postman, *Amusing Ourselves To Death: Public Discourse In The Age of Showbusiness*. (New York: Penguin, 1985); Neil Postman, *Technopoly: the Surrender of Culture to Technology*. (New York: Vintage Books Inc., 1993); Neil Postman, *Building A Bridge to the 18th Century: How the Past Can Improve the Future*. (New York: Vintage Books Inc., 1999); Friedrich Kittler, *Gramophone, Film, Typewriter (Writing Science)*. (Stanford: Stanford University Press, 1999); Steven Shaviro, *Connected, or What It Means to Live in the Network Society*. (Minneapolis: University of Minnesota Press, 2004); Arthur Kroker, *Technology and the Canadian Mind: Innis/McLuhan/Grant*. (Montreal: New World Perspectives, 1984); James W. Carey, "Harold Adam Innis and Marshall McLuhan," *McLuhan Pro and Con*, ed. Raymond Rosenthal. (Baltimore: Penguin, 1968): 270-308; Paul Grosswiler, "The Dialectical Methods of Marshall McLuhan, Marxism, and Critical Theory," *Canadian Journal of Communication* 21/ (1996): 95-124; Paul Grosswiler, *Method Is the Message: McLuhan and Marx* (Montreal: Black Rose, 1990); Richard Cavell, *McLuhan In Space: A Cultural Geography*. (Toronto: University of Toronto Press, 2002); Richard Coyne, *Technoromanticism*. (Cambridge: MIT University Press, 1999); R. Wasson, "Marshall McLuhan and the Politics of Modernism," *Massachusetts Review* 13/4: 567-580.

> The young wonder who Marshall McLuhan was. Maybe some kind of TV commentator in the sixties? The rest of us remember 'the medium is the message' and 'a global village,' and that McLuhan was otherwise unintelligible. He was famous for a while, and then sort of disappeared. You may have read the obituaries in 1980. Does anyone take seriously this Canadian academic who was once billed as 'the most important thinker since Newton, Darwin, Freud, Einstein and Pavlov'? (Bliss 1998, 59-60).

Though clearly an heartless retrospective, Bliss's unambiguous savaging of McLuhan's academic legacy is, at least, on one level correct. Indeed, it does seem that 1969 became 1970 and, just like that, "McLuhan's name and reputation were sent to the attic with the rest of the sensibility (go-go boots, Sgt. Pepper, Woodstock, the Vietnam War) that embodied the failed hopes of a discredited decade," as Lewis H. Lapham explains (Lapham 2001, *xv*). Yet, to name only a few of McLuhan's more notable contemporaries, Jacques Derrida (i.e., 1967), Jacques Ellul (i.e., 1964), Guy Débord (i.e., 1967) and Roland Barthes (i.e., 1966, 1967) didn't suffer disgrace along with the 1960s. Their theorizations of various media published then don't clutter Lapham's metaphoric attic of academe — *not yet*, at least. So why should McLuhan's?

Perhaps, as Christopher Horrocks complains, the problem is that "McLuhan had no theory to analyze or interpret the relationship between economy and technology, or between corporate power and information, and substituted for political consciousness a contemplative stance of apolitical objectivity" (Horrocks 2003, 189). Or, put alternatively by Guy Débord, perhaps it's that McLuhan, "the spectacle's first apologist, seemed to be the most convinced imbecile of the century [until he] changed his mind when he finally discovered in 1976 that the pressure of mass media leads to irrationality, and that it was becoming urgent to modify their usage" (Débord 1990, 33). But six years prior to the sea change from idiotic conviction to urgent

consternation which Débord so abusively notes, McLuhan was already working to uncover the various "invisible environments" which media construe, how people become tangled within them and the corporate interests upon whose behalf such "invisible nets" are inevitably strung.[22]

In fact, McLuhan was never an apologist for the so-called "spectacle." Nor was he nearly as apolitical as he is now so often construed. In the introduction to his very first book, *The Mechanical Bride* (1951), McLuhan warns that "to keep everybody in the helpless state engendered by prolonged mental rutting is the effect of many ads and much entertainment" (McLuhan 1951, *xv*). Four years later, McLuhan would interrogate media specifically as "political forms" (i.e., McLuhan 1952, 1955). Later, he advised his readers that "subliminal and docile acceptance of media impact has made.... prisons without walls for their human users" (McLuhan 1964, 20). Eventually, McLuhan would claim these intangible prisons as the handiwork of a hapless "business world" which had bungled about throughout at least the capitalist segment of human history under the delusion that "it can introduce innovations without any ensuing consequences" (McLuhan 1967, 81).

While academics across the humanities remain, for the most part, publicly skeptical of McLuhan's work, musicologists who are actually concerned enough with culture to care what McLuhan has to say about it seem to have interpellated the "swingerisms" reading of his work without exception. To name only the most recent example, Paul Théberge rather curtly dismisses McLuhan in a survey he offers of theory of music technology in the widely used *Key Terms in Popular Music and Culture* (2001). The

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[22] McLuhan most forcefully, though also most cryptically, argues this in Marshall McLuhan, *Culture Is Our Business*. (New York: McGraw-Hill, 1970).

sum of Théberge's treatment of McLuhan amounts only to a concession that "the impact of the ideas of Marshall McLuhan on popular discourses about technology is still quite prevalent, despite the fact that his theories have been relentlessly criticized in academe (and in many public forums as well), his logic and his particular brand of technological determinism denounced" (Théberge 2001, 212). Tellingly, Théberge offers no evidence to support his claim that McLuhan's theorizations constitute so-called "technological determinisms," let alone a particular "brand." Nor does he explain what constitutes, nor what's the matter with, a "technological determinism" to begin with (though, presumably, it is problematic because it is not a "cultural determinism"). Nor does Théberge consider that the staying power of McLuhan's writings, especially in the face of supposedly "*relentless*" criticism, might have to do with something of lasting value in them regardless of their current disrepute. What is so telling is that no such explanation seems to be required: everyone just knows McLuhan was wrong by now, don't they?

I do not mean to be flippant in posing this question. It seems to me that everyone *does* know McLuhan was wrong by now, in musicology and other human studies. However, even after years spent examining the literature on McLuhan's work, I am still no closer to any explanation as to why this is the case except to say that McLuhan's theorizations are now closely associated with "technological determinism" *per se*, and anything which can be identified as "technologically determined" is generally agreed to be *prima facie* false. As noted, seldom is any explanation offered as to why "technological determinism" is flawed as an interpretive mode, nor, even, what specifically constitutes a "technological determinism." As James Carey notes, the vast majority of theorists of communications now simply *assume* that McLuhan was a "technological determinist" and, as such, proceed "despite McLuhan" (Carey 1992,

136). In which case, the present injunction against Marshall McLuhan in (predominantly) cultural studies of technology might best be viewed as an injunction against "technological determinism" in general, rather than as a consensual rejection of any of McLuhan's claims in particular.

In fact, to my mind, this "injunction" constitutes an impediment to research. As one negates even just the possibility that McLuhan's theorizations might continue to bear substantive insight into the current situation of capitalist modernity because they grant efficacy to technology, any comprehensive understanding of what, specifically, is at stake whenever people make and use, or cease to make and use, certain technologies is rendered null and void in the process. Yet McLuhan's primary thesis about the media was not that we become what technology, in the first instance, *determines* us to be. Rather, it was that "we become what we behold; we make our tools *and thereafter* our tools make us" (McLuhan 1964, 12; my emphasis). To dismiss McLuhan's claims on grounds of "technological determinism," then, is about as insightful as dismissing Sigmeund Freud's work on parapraxes on grounds that he does not grant speakers total agency over the medium of language, which is to say, it misses the point entirely.

Road Map To Chapter Two.

To demonstrate that Recording Practice is, indeed, technologically determined, and that the current complaint against technological determinism misunderstands what constitutes a determination in the first instance, I have divided this chapter into three sections. In Section 1, I situate Marshall McLuhan's work within the discourse of human studies at large, as it currently exists. In the process, I note "the anxiety of

influence" with which each of McLuhan's present adherents must contend, and argue that this anxiety has encouraged many commentators to neglect the charge of "technological determinism" with regards to McLuhan's theorizations altogether. Noting McLuhan's close identification with a rather reductive notion of what constitutes technological determinism, I then review theoretical arguments made both for and against technological determinism as an interpretive mode, identifying the latter as *prima facie* instances of instrumental reason. With the complaint against technological determinism clarified, I then argue that McLuhan's theorizations do not actually qualify as such. In turn, I consider the possibility that it is McLuhan's conception of C/culture, the S/self and human agency which actually irks his present critics, and that the charge of "technological determinism" here actually conceals a ploy to preserve the notion of self-autonomous and self-determining subjectivity which has prevailed in the West since at least the time of Enlightenment.

Next, in Section 2, I follow the broad contours of McLuhan's methodology in studying media, and interrogate Recording Practice as a determination of sound reproduction technology. That is, I follow a McLuhanite line of analysis and study the "communications system" of making and hearing music recordings as a musical interpellation of — or, an assignment of musical identity to — the industrial procedure of transduction. In so doing, I problematize the notion of "sound reproduction" and, consequently, claim Recording Practice as, *in toto*, a determination of the capacities of sound reproduction technology, its limits being the limits of what sound reproduction can (be made to) do. Finally, I conclude, in Section 3, by examining the so-called "mastering process," specifically, as it elucidates the technologically determined state of the Network of Recording Practice.

SECTION ONE

McLuhan in Musicology.

So prevalent is McLuhan's current ignominy in certain academic circles that, as Judith Stamps concedes, "to engage with his theories publicly is *already* to risk dismissal" (Stamps 1995, *xv*). The pressure to reject McLuhan is indeed strong now, and it has encouraged many musicologists, for one, to offer obviously flawed formulations as to how the oftentimes uneasy struggle in which humanity engages with its music technologies should be understood to ramify as musical practice in relation to McLuhan's theorizations. In fact, commentators often paradoxically (as opposed to dialectically) denounce certain of McLuhan's claims at the outset of a paragraph only to accept them by the end — as refutation of his claims, no less.

In his influential *Studying Popular Music* (1990), for example, Richard Middleton warns of "a danger in all McLuhanite positions of a simple essentialism: an intrinsically 'natural,' 'healthy' musicality is corrupted and destroyed by literacy" (Middleton 1990, 92). Yet Middleton concedes only six pages prior that:

> It is.... not easy to refute the idea that cultures and outlooks dominated by oral modes, literacy and print, or electronic media are in many respects distinctive. And the differences feed through to specific practices like music. Establishing these broad relationships is one of the real achievements of McLuhan and those influenced by him (Middleton 1990, 76).

A short while later, Middleton explains that "the developments which took place in post-Renaissance Western Music would have been *impossible* without music notation, with its propensity for large-scale, visually organized construction, abstraction of

symbol from sound, coordination of multiple events and voices (through bar-lines, for instance), and 'spatialized' chord structures and progressions" (Middleton 1990, 80; my emphasis). Finally, with his sights trained squarely upon refuting McLuhan, Middleton winds up agreeing with his target over the very danger which he warned his readers about at the outset:

> We can certainly say that in an important sense a record is finished — finite, objectified — in a way that oral performance is not. Indeed, in this sense it is, ironically, recordings rather than scores which represent an extreme form of reified abstraction (with the resulting potential alienation of producer and consumer). The immediacy of musical 'speech' is frozen into electric 'print,' producing an 'acoustic publication.' We could argue, then, that recording comes at the culmination of one era as much as at the start of another (Middleton 1990, 80).

What Middleton ultimately claims is that students of Popular Music should be skeptical of McLuhan because he has a tendency to romanticize (and, thereby, to essentialize somehow more than were he to do the exact opposite and not romanticize) oral traditions of communication as more "humane" and/or "natural" than other traditions. Yet Middleton claims precisely the same in positing the oral as always developmentally prior to every other mode of communication. Only furthering the irony, Middleton situates his warning smack dab in the middle of a thoroughly McLuhanite narrative of musical development that runs from oral (i.e., monophony) through literate (i.e., polyphony) to electronic (i.e., phonography) stages, each of which

"abstracts," "reifies" and "alienates" at least one degree more than its predecessor(s), which is *precisely* what McLuhan claimed.[23]

Such simultaneous acceptance/rejection of McLuhan is typical of his treatment by musicologists in general, and by scholars working in other fields. In fact, I don't think it would be too much of a stretch to claim that a fair amount of hostility has been directed towards McLuhan by academics in general, and that this hostility now threatens to obscure the more valuable of his contentions under a rubble-heap of invective and misunderstanding. Nor, contrary to expectation, does it seem likely that McLuhan would have found his present circumstance entirely woeful. After all, "the most important thinker of the twentieth century," as *Wired Magazine* recently dubbed McLuhan, was nothing if not appreciative of debate. However, hostility is directed towards McLuhan very often as his line of reasoning and style of argumentation are followed almost to the letter, which makes the task of extracting him from his present disrepute all the more onerous.

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[23] I should be clear, however, that Middleton is not alone in misunderstanding McLuhan's notion of electronic media as somehow emancipatory from the supposedly feckless conventions of literacy. As Paul Grosswiler writes, it was "the neutrality" of McLuhan's "major works of the 1960s" that "was often interpreted as an uncritical acceptance of the new electronic media" (Grosswiler 1999, 10). However, while McLuhan indeed considered electronic media to be capable of returning the *sensus communis* — the concept is borrowed from St. Thomas Aquinas — into proper balance, it was not inevitable to his mind that this should occur, nor that the Western world would be capable of navigating the transition from the "overheated eye" to the senses in harmonic balance. McLuhan considered "literate" humanity to be caught in the "vortex" of electronic media, the only manner of going through the "sinkhole" being to begin to seek after "patterns in the madness," as it were.

McLuhan in Human Studies.

Outside musicology, scholars appear more willing to take Stamps's risk. Their work would seem to offer a surfeit of models to choose from for extracting McLuhan from his presently contentious situation in Western academe. Yet these commentators generally engage with McLuhan as only a Canadian or North American "extension" of European precedents, with James Carey's "Harold Adams Innis and Marshall McLuhan" (1968), Donald F. Theall's *Understanding McLuhan: the Medium is the Rearview Mirror* (1971), Arthur Kroker's *Technology and the Canadian Mind: Innis/McLuhan/Grant* (1984) and, more recently, Robert E. Babe's "McLuhan and Canadian Communication Thought" (2004) being four notable, happy exceptions.

John Fekete (1977, 1982), Karlheinz Barck (2003), James Carey (1968, 1987, 1998, 1999) and Pamela McCallum (1989), for example, each explore McLuhan's work in relation to Walter Benjamin's. They find the two more or less ideologically allied at almost every turn. William Kuhns (1971) charts theoretical concurrences between Harold Innis and, by extension, between Marshall McLuhan and Jacques Ellul. James Curtis (1972, 1978) complements the work of linguist Ferdinand de Saussure with that of McLuhan, while Paul Heyer (1989a, 1989b) embeds McLuhan within a trajectory of speculative cultural commentary that begins with Jean-Jacques Rousseau and ends with Michel Foucault. Linda Hutcheon indicts McLuhan as a central convener of Jacques Derrida's "phonetic conspiracy," albeit tenuously, as Judith Stamps (1995, *xiii*) notes. Jean Maribini (1973) marks certain corollaries between McLuhan's (1967, 1968) "Global Villager" and Herbert Marcuse's (1964) "One-Dimensional Man." Both Donald Theall (1989) and Andrew Wernick (1986) construe McLuhan as a North American sympathizer with members of the Frankfurt School, while Judith Stamps (1995) follows their line of reasoning to cast McLuhan and his primary influence,

Harold Innis, as "negative dialecticians" — a term she uses as if it names only a method — in the tradition of Theodor W. Adorno and Walter Benjamin.

That being said, it's not like McLuhan *per se* is anathema to scholars at large. There have been numerous studies published since at least 1972 which take McLuhan seriously as a sturdy basis for studying media; which design, build and advocate methods for examining media that each use McLuhan's methods as their foundation stone.[24] It's just that these studies are so few and far between compared with other studies published at the same time which almost exclusively reject McLuhan out of hand as everything from a laughable lunatic to an attention starved media whore to a "holy fool" to someone who was just plain wacky. Furthermore, commentary which defends McLuhan from such charges generally follows through on only those of his

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[24] A sampling of studies which use McLuhan as a "foundation stone" should include, for example, P. P. Ajayakumar, "McLuhan, Media, and Hybridity: A Revaluation in the Postcolonial Context," *At the Speed of Light There is Only Illumination: A Reappraisal of Marshall McLuhan*, eds. John Moss and Linda M. Morra. (Ottawa: University of Ottawa Press, 2004), pp. 147-152; James Carey, "McLuhan and Mumford: Roots of Modern Media Analysis," *Journal of Communication* 31 (Summer 1981): 162-178, and "Walter Benjamin, Marshall McLuhan and the Emergence of Visual Society," *Prospects: An Annual of American Cultural Studies* 12 (Fall 1987): 29-38; Daniel J. Czitrom, *Media and the American Mind: From Morse to McLuhan* (Chapel Hill: University of North Carolina Press, 1982); Gordon Gow, "Making Sense of McLuhan Space," *At the Speed of Light There is Only Illumination: A Reappraisal of Marshall McLuhan*, eds. John Moss and Linda M. Morra. (Ottawa: University of Ottawa Press, 2004), pp. 185-206; Paul Grosswiler, *Method Is The Message: McLuhan and Marx* (Montréal: Black Rose Books, 1998); Carolyn Marvin, "Innis, McLuhan and Marx," *Visible Language* 23 (Summer 1986): 355-359; Dominic Manganiello, "Retracing the Labyrinth of Modernism: McLuhan and the Aesthetic Moment," *At the Speed of Light There is Only Illumination: A Reappraisal of Marshall McLuhan*, eds. John Moss and Linda M. Morra. (Ottawa: University of Ottawa Press, 2004), pp. 85-95.

theorizations which concern, in McLuhan's parlance, "acoustic" and "visual" space (respectively: "non-Euclidean" and "Euclidean" space).

In *McLuhan in Space: A Cultural Geography* (2003), for instance, Richard Cavell concentrates exclusively on the spatial in McLuhan's work. What's significant about McLuhan for Cavell is how he develops the category of "Space" in general as an analytic focus of his media studies. To Cavell's mind, in fact, it is "Space" *per se* which

> constitutes the single most constant conceptual category in the work of Marshall McLuhan.... Space is the notion that connects a multiplicity of elements in McLuhan's large and diverse *oeuvre*. McLuhan made constant reference to space throughout his career, and the various dimensions of his thought are articulated through notions of spatial biases, sensations, and modes of production. It was space, furthermore, which anchored the system of ideas that connect McLuhan to artists and theorists with whose work his own is most productively situated (Cavell 2003, *xviii*).

Karlheinz Barck concurs with Cavell. For Barck, in fact, it is McLuhan's focus on "Space" *per se* which most clearly aligns his work with Walter Benjamin's. According to Barck, McLuhan and Benjamin:

> Insist on tactility as the attitude that continues to connect the human senses in spite of the increased specialization and isolation of perception induced by technical evolution.... Benjamin's militant critique of cultural and aesthetic concepts breaks down the 'Great Wall' between technology and aesthetics to create a border-crossing that resembles, for example, McLuhan's account of how our involvement with the perception of television images increases our tactile abilities. Books such as *The Gutenberg Galaxy* and *Understanding Media* have taught us to see the parallels between the starring role played by typography in the shaping of human thought and life and the changes in perceptual modeseffected by life in the 'electric age' (Barck 2003, 42-43).

Similarly convinced as Cavell and Barck that McLuhan was a theorist of space disguised in the clip-on bow tie of, in McLuhan's own words, "a considerably stodgy media theorist," Judith Stamps develops McLuhan's theorizations of "media environments" to argue the present need for specifically acoustic space in the West (McLuhan cited in Grosswiler 1998, 2). To Stamps's mind, in fact, such space is the only available palliative for what she alleges is modern Western humanity's "tyranny of the eye" (Stamps 1995, *vii*). Even Jean Baudrillard is in on this, explaining in his wildly influential *Simulations* (1983) that "we are witnessing the end of perspective and panoptic space[;] the medium is no longer identifiable as such, and the merging of the medium and the message (McLuhan) is the first great formula of this age" (Baudrillard 1983, 54).[25] Donald Theall (1989), Arthur Kroker (1986) and, recently, Gary Genosko (1999) each focus almost exclusively on the spatial in McLuhan's oeuvre, too.

Still, regardless of their analytic foci, for those who admire McLuhan's work, as Leon Surrette points out, "although we should not be overly impressed at McLuhan's prescience in forecasting a future which he helped to formulate, there is enough

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[25] For more *of* Baudrillard on McLuhan, see, for example, Jean Baudrillard, "Requiem for the Media," *For A Critique of the Political Economy of the Sign* (St. Louis: Telos Press, 1981): 164-184, and "The Masses: The Implosion of the Social in the Media," *Selected Writings*, ed. Mark Poster (Cambridge: Polity Press, 1988): 207-219. For more *on* Baudrillard and McLuhan, see, for example, Douglas Kellner, "Resurrecting McLuhan? Jean Baudrillard and the Academy of Postmodernism," *Communication: For or Against Democracy*, eds. Marc Raboy and Peter A. Bruck (Montréal: Black Rose Books, 1989): 131-146; Douglas Kellner, *Jean Baudrillard: From Marxism to Postmodernism and Beyond* (Stanford: Stanford University Press, 1989), 60-76; Steven Best and Douglas Kellner, *Postmodern Theory: Critical Interrogations* (New York: Guilford Press, 1991), 267-268; Stanley Aronowitz and Henry A. Giroux, *Postmodern Education: Politics, Culture and Social Criticism* (Minneapolis: University of Minnesota Press, 1991), 192-193.

similarity between his cultural forecasts and the events to give pause to those who have rejected him as a clown, faker, or opportunist" (Surrette 1996, 26). Where McLuhan gives the most pause for these writers, though, is only where he connects media to space. Furthermore, none of these writers accepts McLuhan's propositions whole hog. Each amends and retailors certain aspects of McLuhan's theorizations to suit their own agendas, often ignoring his (many) critics in the process. While there is certainly nothing particularly the matter with this, the general silence concerning the alleged "technological determinism" of McLuhan's interpretive stance in commentary which takes him seriously remains deafening if not disconcerting for those of us who would engage further with his work. It can seem, at times, conspiratorial if not downright pathological.

Indeed, given that McLuhan is almost *invariably* charged with "technological determinism" by those who seek to dismiss him, and given that he is almost invariably thereby dismissed, it is troubling to discover that those who would recover him from his present disrepute seldom engage with this primary complaint leveled against him. It is as if the man who rather democratically argued the primacy of specifically oral debate in settling matters of cultural dispute has spawned a generation of followers who conspicuously avoid that very thing (in print, at least). Simply positioning McLuhan within a trajectory of cultural commentary that runs from Europe to North America, or developing only those strands of McLuhan's thought which he did not, has to suffice to legitimize him as a theorist and, thereby, to recover his theories from their presently contentious position in Western academe.

As a result of all this evasion, McLuhan emerges *all the more* as a symbol of theoretical totalitarianism (indexed sneakily by commentators under the shorthand of "technological determinist") and what bears McLuhan's name likewise bears his guilt.

If anything, Stamps's concession that "to engage with McLuhan publicly is already to risk dismissal" acknowledges this guilt by association. Less directly, it also acknowledges the anxiety of influence with which each of McLuhan's current adherents must now contend. Indeed, it would seem that we admirers of McLuhan are left no other option: should you agree with McLuhan at all, and should you intend to further any of his interpretive aims, it's best to just accept his guilt and move on to only those of his theories which haven't yet been labeled exemplary instances of "technological determinism."

Technological Determinism: A Cursory Overview.

"Technological determinism" is, according to Linda Gorman and Bob McLean, "the view that technology is [an] agent of social change" (Gorman and McLean 2003, 48). More often than not, the title "technological determinism" is deployed derisively by present commentators, to identify (and, in so doing, to summarily dismiss from consideration) interpretations of cultural developments which, to commentators' minds, place an explanatory emphasis upon technical innovation in narratives of cultural change. On the broadest level, then, the *complaint* that an argument is "technologically determined" is actually a complaint that a particular explanation of some cultural phenomenon obfuscates the central role which innovators and users of a technology, and the social context(s) of their innovation and use, together play in determining each and every cultural development.[26]

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[26] It is possible to think of this as a kind of cultural solipsism. The logical inference is that all that can be known and confirmed about the world is cultural.

As such, "technological determinism" ultimately reduces to a single proposition, namely, some *thing* called "technology" bears social efficacy and, as such, drives human history. Ultimately, then, the "technological determinist" positions technology as:

> The dominant, *determining* factor.... in social developments. Marshall McLuhan [for example].... developed a body of ideas that suggested that in communications, technology was the determining influence. His most frequently quoted aphorism is that 'the *medium* is the message'.... He meant by this that media content (the explicit message) explains far less about communications than the communicative impact of the technical medium as such, viewed in terms of its effects on whole societies and cultures over centuries of their development. Actual media output therefore was of comparatively little interest to McLuhan (Winston 2000, 799).

Specifically, so-called "technologically determined" readings of technology and humanity are those which allegedly posit the social as an aftereffect of technology, or which offer monistic explanations of social change whereby all manner of such change is technology's fault or virtue. Often contrasted with so-called "holistic" interpretations and with crude "cultural determinism," "technological determinism" is situated in most accounts within the metaphysical tradition of Reductionism, which is generally associated with philosophers from Democritus (ca. 6 BC) to Rene Déscartes (ca. 1596-1650), wherein complicated totalities are reduced to byproducts of conflict between their atomistic parts and agencies. Leslie White offers a good example of just such an interpretive bias:

> We may view a cultural system as a series of three horizontal strata: the technological layer on the bottom, the philosophical on top, the sociological stratum in between.... The technological system is basic and primary. Social systems are functions of technologies; and philosophies express technological forces and reflect social systems. *The technological factor is therefore the determinant of a cultural system as a whole. It determines the form of social systems, and technology and*

society together determine the content and orientation of philosophy (White 1944, 366; my emphasis).

Karl Marx: The Father of Technological Determinism?

Karl Marx is frequently credited with having invented "technological determinism," typically based upon a single sentence. To Marx's mind, "the windmill gives you society with the feudal lord; the steam-mill society with the industrial capitalist" (Marx 1847/1995). From there, the likes of, for instance, Daniel Chandler (2000) argue a diverse range of scholars — from Sigfried Giedion, Leslie White, Lynn White Jr., Harold Adams Innis to Herbert Marshall McLuhan — to have contracted Marx's particular strain of "technological determinism."

In fact, even when scholars reject Marx's concept of economic determination, they are charged with following his variety of technological determinism, though both kinds of determination are inseparable in Marx's account. Furthermore, in invoking the windmill and the steam-mill, Marx invoked the Ellulian category of "technics" more so than technology *per se*. Considering technology an historically determined form of the division of labour, Marx ultimately argued that technology constitutes both a means, and a product, of those "ways of doing" (i.e., those "techniques") which are preeminent at a particular time and place. Indeed, in Marx's final analysis, technology and the mode of production in which it prevails are finally *mutually* determining.

More recently, theorists such as Neil Postman and O. B. Hardison Jr. have, to my mind, rather courageously disagreed with the current consensus about "technological determinism," particularly as it exists in cultural studies of technology. They develop Karl Marx's and others' notions of technology, technique and society to

suit the present circumstance of humanity and machine. According to Neil Postman, for example, "technique, like any other technology, tends to function independently of the system it serves — it becomes autonomous, in the manner of a robot that no longer obeys its master" (Postman 1992, 142). Elsewhere, Postman defines this process as "The Frankenstein Syndrome":

> One creates a machine for a particular and limited purpose but, once the machine is built, we discover, always to our surprise, that it has ideas of its own. That it is not only quite capable of changing our habits but.... of changing our habits of mind (Postman 1992, 142).

O. B. Hardison Jr. echoes Postman's claims. Divining at least two distinct stages of technological development from the annals of human history, Hardison Jr. outlines a "classic" stage of technological development and an "expressive" stage. The former stage is that during which technology fulfills, with more or less success, whichever purely utilitarian function(s) its inventors devise for it. Next, technology "expresses" certain capabilities beyond its original function(s), thereby entering into a phase of "techno-human interactivity." This is always the case, Hardison Jr. explains:

> A truly new technology refuses to stay classic. It becomes expressive and reshapes its [classic] function. A good example.... is the automobile, which began life as an improved version of the horse-drawn carriage. The success of the automobile created so many new conditions that society had to be reshaped to accommodate them. In spite of the best of early intentions, within a few years after its commercial introduction the automobile ceased to be classic and became expressive (Hardison Jr. 1989, 237).

To be clear, neither Marx, Postman nor Hardison Jr., argue that humanity passively receives the "revenge effects" or "expressions" of technology and, in so doing, slides along the surface of "technologically determined" historical development with all

the agency of a drenched cotton ball caught in a whirlpool. Their assertions concerning the relation between humanity and technology are much less monistic, and much more dialectical, than is now most often claimed. The point of Hardison Jr.'s concept of technological "expressivity," for instance, is that humanity shapes the social consequences of technology — *but only according to what, specifically, a technology can be made to do*. In fact, according to the vast majority of those accounts which are now deemed "technologically determined," or "technologically determining," technology is a product of specifically human ingenuity and sense precisely as it shapes and refigures — and, in so doing, ultimately *produces* — such ingenuity and sense each time it operates. As such, to the so-called "technological determinist," humanity engages in a *lived* dialectic with its machines. As Karl Marx notes:

> The division of labour gradually transforms the worker's operations into more and more mechanical ones, so that at a certain point a mechanism can step into their places. Thus, the specific mode of working here appears directly as becoming transferred from the worker to capital in the form of the machine, and his own labour capacity devalued, thereby. Hence the worker's struggle against machinery. What was the living worker's activity becomes the activity of machinery. Thus the appropriation of labour by capital confronts the worker in a coarsely sensuous form (Marx 1978, 283).

Consequently, "the contest between the capitalist and the wage labourer," which, according to Marx, "dates back to the very origin of capital," intensifies such that:

> The workman [fights] against the instruments of labour itself, the material embodiment of capital. He revolts against this particular form of the means of production, as being the material basis of the capitalist mode of production (Marx 1978, 411).

The Current Complaint: Misunderstood/Neglected Dialectic.

It seems that the current complaint against "technological determinism" either neglects or misunderstands the logic of dialectic which inheres in it. What is now called "technological determinism" holds at its core the proposition that technology is both a product and an embodiment of human labour and productivity; that technology is, in short, embodied technique which, through its mechanical embodiment, serves as both a product and a producer of human efficacy.

In fact, as Jacques Ellul notes, in *The Technological Society* (1964), technology is "pure" technique, one or more "ways of doing" distilled into a mechanical mold and given a particular material form as technology. As mechanized "ways of doing," technologies must thus be capable of displacing human labour from production. They must be capable of "reifying" or, in Luckacs's parlance, "thingifying" human industriousness; and, furthermore, of reconfiguring which human capacities are needed to manufacture abundance. Hence Marx's and Engels's assertion, in the *Manifesto of the Communist Party*, that:

> Owing to the extensive use of machinery and to division of labour, the work of the proletarians has lost all individual character, and consequently all charm for the workman. He becomes an appendage of the machine, and it is only the most simply, most monotonous, and most easily acquired knack, that is required of him. Hence, the cost of production of a workman is restricted, almost entirely, to the means of subsistence that he requires for his maintenance, and for the propagation of his race is equal to its cost of production. In proportion, therefore, as the repulsiveness of the work increases, the wage decreases. Nay more, in proportion as the use of machinery and division of labour increases, in the same proportion the burden of toil also increases, whether by prolongation of the working hours, by the increase of the work exacted in a given time or by increased speech of the machinery, etc. (Marx & Engels 1978, 479).

What is industrially produced, then, is a product of human labour, but only as such labour is *externalized or embodied/"thingified" by technology*. That is, industrial products are products of an industrial manufacturing process which relies almost singularly upon industrial technology and requires human ingenuity and labour only for the innovation, maintenance and operation of such technology. Indeed, "it is not the articles made, but how they are made, and by what instruments, that enables us to distinguish different economic epochs" (Marx 1978, 346).

Industrial capitalism is technologically determined, but precisely as it is, in sum, a determination of human innovation, being wholly a product of industrial production and, thus, industrial means and relations of production. As the means and relations of industrial production are refigured to increase the rate of production and, therethrough, of surplus value (i.e., for my purposes, capital), so, too, are the technologies, and the relations of production which technology embodies, refigured to suit the intensified rate of return.

Though industrial productivity is a specifically human product and practice, its limits are also the limits of what industrial technology can be made to achieve. One simply cannot satisfy the want or need for a mass produced car part, for instance, if the technologies which enable mass production of car parts do not exist. Satisfaction of the want/need for a mass produced car part, not to mention the want/need which is to be satisfied itself, is, therefore, technologically determined, but precisely as industrial mass production itself is an entirely capitalist (which is to say, an entirely *human*) innovation.

From Inscription to Singing: Sound Reproduction Technology, 1879 to 1900.

The meandering course which sound reproduction technology followed to reach its, by now, widely assumed musical utility demonstrates the material reality of technological determinism. While the difficulty which the first innovators and manufacturers of sound reproduction technology experienced in establishing a proper market for their wares is often claimed to refute "technological determinism" by the latter's many current critics, in that it is (rather reductively) argued to elucidate the central role which cultural priorities and values play in *determining* any technology's social efficacies, this is an entirely idealistic, if not an wholly abstract, notion of what, specifically, *constitutes* determination. As embodied technique, sound reproduction technology presented its initial makers and users with a finite set of possible uses (i.e., that which it could be made to do) and, in so doing, determine those uses.

It was, for instance, a determination of sound reproduction technology itself that it wasn't eventually figured into an instrument of mass destruction, because such technology simply cannot be made to operate as a nuclear bomb does. Indeed, the meandering course to musical utility which sound reproduction technology followed during the last two decades of the nineteenth century and the first two decades of the twentieth century constitutes an instance of, returning to Hardison Jr.'s (1989) term, "techno-human *interactivity*." During this time, the consequences of sound reproduction technology were determined both by the material capacities of that technology (i.e., by the limited inventory of things that sound reproduction technology could be made to do or produce) and by human innovation and adoption of strategies for capitalizing upon those capacities.

The technique which is currently called "sound reproduction," which is actually transduction, emerges from attempts made during the early to middle nineteenth

century to automatically transcribe sound. Sound reproduction technology's nineteenth century inventors did not seek methods for "writing" sound, as is often argued; a form of notation would have sufficed. Rather, they sought an automated and, therefore, impersonal — which is to say, "technical" — system of transcription which could visually objectify sound *without succumbing to the restrictions of human fallibility*. That is, they sought a technical, "scientific" means to visually objectify sound in order to better comprehend what was increasingly understood as sound's *objective* nature. As Jonathan Sterne explains:

> prior to the nineteenth century, philosophies of sound usually considered their object through a particular, idealized instance such as speech or music. Works of grammar and logic distinguished between significant and insignificant sounds by calling all significant sounds *vox* — voice. Other philosophers took music as an idealized theoretical instance of sound, leading to the analysis of pitch and harmony, all the way up to the harmony of the spheres and, for Saint Augustine, God. In contrast, the concept *frequency* — previously developed by Descartes, Mersenne, and Bernoulli — offered a way to think about sound as a form of motion or vibration. As the notion of frequency took hold in nineteenth-century physics, acoustics, otology, and physiology, these fields broke with the older philosophies of sound. Where speech or music had been general categories through which sound was understood, they were now special cases of the general phenomenon of sound (Sterne 2003a, 23).

The meandering course which the North American record industry, for one, took to develop during the two decades prior to the so-called "golden age of acoustic recording" — that is, during the last two decades of the nineteenth century — demonstrates Sterne's claims. The medium of phonetic literacy and oral speech seem to have served as a kind of epistemological barrier during this time; they were

impediments to conception of uses for sound reproduction technology besides as an aid to writing or speech. In Marshall McLuhan's words:

> the phonograph was involved in many misconceptions, as one of its early names — gramophone — implies. It was conceived as a form of auditory writing (*gramma*-letters). It was also called 'graphophone,' with the needle in the role of pen. The idea of it as a 'talking machine' was especially popular. Edison was delayed in his approach to the solution of its problems by considering it at first as a 'telephone repeater'; that is, a storehouse of data from the telephone, enabling the telephone to 'provide invaluable records, instead of being the recipient of momentary and fleeting communications.' These words of Edison, published in the *North American Review* of June, 1878, illustrate how the then recent telephone invention already had the power to color thinking in other fields. So, the record player had to be seen as a kind of phonetic record of telephone conversation. Hence the names 'phonograph' and 'gramophone' (McLuhan 1964, 276).

Another influence upon early thought about sound reproduction technology which is not often discussed was the logic of commerce, specifically, the profit motive. It should not be overlooked that those who developed the phonograph, the graphophone, the gramophone, and every other sound reproduction technology during this time did so to turn a profit; manufacture and distribution of sound reproduction technology struck its pioneers as potentially profitable and, so, as a desirable pursuit. Until at least roughly 1900, in fact, the constant concern of most North American manufacturers of sound reproduction technology was to cultivate, shape and profit by a market *of any sort* for their wares. Whether it be a market centered in office dictation, in recited correspondences, or in mechanical reproduction of songs, mattered not in the slightest to these speculators. What mattered was simply that the sound reproduction technologies they manufactured sell at the best possible rate of return.

Ultimately, it was a "best guess" when Edison, for example, marketed his phonograph as an accessory to the early telephone, or when Alexander Graham Bell marketed his "graphophone" as a tool for office dictation. "When Edison first came up with his tinfoil cylinder phonograph, he envisioned marketing it as an office machine," Reebee Garofolo notes.

> In order to introduce it to the public, however, he decided to exploit its novelty value. In countless demonstrations in lecture halls, theatres, and vaudeville houses, members of the audience were invited to make live recordings. Scores of local vocalists, whistlers and instrumentalists tried their hand at Edison's amazing 'talking machine.' Although it was soon found that brass reproduced reasonably well, the poor sound quality of the tinfoil cylinder severely hampered its commercial value (Garofolo 2002, 17).

In fact, by 1890, Edison had dismissed the phonograph as "a mere toy" with "no commercial value" (Edison cited in Gelatt 1977, 29). Thankfully, he turned his attention to the electric light before returning once more to the "talking machine" in 1893.

In the meantime, Alexander Graham Bell and Charles Sumner Tainter responded to a novelty demonstration of Edison's "talking machine" with the "Volta graphophone":

> teaming with his cousin, Chichester Bell, and the engineer Charles Sumner Tainter, Alexander Graham Bell wanted to develop a user-friendly — and commercially viable — version of the early record player [read: phonograph]. Flipping the word *phonograph*, they came up with *graphophone*. It was patented in 1886. They felt it offered consumers an easier-to-handle machine (Coleman 2003, 11).

Though the graphophone is sometimes considered Bell's first foray into the realm of sound reproduction, it was, in fact, his second. In 1874, he and his partner at the time, Clarence Blake, unleashed the gruesome "ear phonautograph" upon the world (I examine the ear phonautograph in Section II of this chapter, specifically as it relates to transduction). Named for its transducing mechanism — an actual decaying human ear excised from a cadaver, with a chaff of wheat affixed to the tympanic membrane — the ear phonautograph produced tracings of sound on a pane of smoked glass. These tracings, Bell hoped, would help his deaf niece acquire a better understanding of the mechanics of sound production.

Unlike the phonautograph, however, Bell's graphophone was capable of reproducing sonic phenomenon. It featured a floating stylus which cut "hill and dale" grooves into wax-coated cardboard cylinders. The stylus was then run along the grooves, causing it to vibrate. The resulting vibrations were registered through a transducing tube, where they were then converted into sonic phenomena and amplified through a "magnifying" bell. This, by now, is clearly an invention with musical utility. However, in 1886, it was anything but clear to Bell and Tainter whether or not their graphophone could be fruitfully marketed to musical interests. They marketed the graphophone as a dictating machine, with rather lackluster results. "As a dictation device in the workplace," according to Coleman, the graphophone was simply a "disaster," being "clumsy and impractical" (Coleman 2003, 12).

Still, despite its initial failure to provide returns, Jesse Lippincott was sufficiently impressed by the graphophone to invest close to $1 million in private capital (an inheritance) to consolidate Edison's patents with the national sales rights for the graphophone. In so doing, Lippincott inaugurated the North American Phonograph Company. Like Volta, though, the NAPC would initially focus on the less than

lucrative dictating machine market, "mechanical problems and resistance from stenographers (who were mostly men at the time) constantly plaguing the business" (Garofolo 2002,17). This almost ruined the fledgling company before it was off the ground. Only making matters worse, Jesse Lippincott fell victim to paralysis before the century was through. Already on the brink of financial ruin, the NAPC collapsed into full disarray.

The NAPC might never have recovered from the disarray which followed Lippincott's illness had it not been for Edward D. Eaton, who owned a subsidiary of the NAPC which, in more or less the same form, continues to play a major role in the record industry today: the Columbia Phonograph Company (named for its franchise throughout the District of Columbia). Having witnessed the phonograph falter in the office dictation market, and dealing with the NAPC's disarray on a daily basis, Eaton considered himself left no other option than to take what was, at the time, a drastic risk: develop the phonograph as an instrument for music reproduction.

Before he could take this risk, however, Louis Glass, who managed the Pacific licensee of Lippincott's NAPC, would have to append listening tubes and a coin activated mechanism to the Lippincott dictating machine, and place the resulting prototype jukebox in San Francisco's Palais Royale Saloon during summer of 1889 (San Francisco was Glass's home city). "It was ludicrous in the extreme to see ten people grouped about a phonograph, each with a listening tube leading from his ears, grinning and laughing at what he heard," remembers one executive (cited in Garofolo 2002, 17). Such lunacy aside, by 1890 Glass had installed his "nickel-in-the-slot"

machines in over eighteen locations. Some of these prototype jukeboxes posted profits of over $1,200 per annum.[27] As Jonathan Sterne explains,

> already in 1890, frustrated phonograph merchants were turning away from business uses and toward the growing coin-in-the-slot business. By the mid-1890s, this was one of the main areas in which money could be made.... Coin-in-the-slot machines, where a user could hear a song for a fee, were located in hotel lobbies, train stations, and arcades. As cities grew more spread out, a well-placed arcade could entertain commuters with a few minutes to kill and a few cents in their pockets. The boom period for this business lasted only a few years. Between the erosion of phonography's novelty to coin-in the-slot users and a bottleneck in the manufacture and distribution of new recordings, the potential of arcade-style listening to support the industry died off in the first decade of the twentieth century (Sterne 2003a, 201).

Though "pay-for-play" phonographs proved helpful in developing a public taste for music recordings, the looming cost of phonographs remained prohibitive for all but financially élite buyers. Running upwards of $150 dollars each in 1890, phonographs were still too expensive for anyone beyond the so-called "horse and carriage" market to afford. However, as Glass's "nickel-in-the-slot" pay phonographs multiplied so, too, did demand for recorded music. Eaton's Columbia Phonograph Company capitalized on Glass's invention by satisfying the demand for high quality "content" which it encouraged. Columbia produced cylinders of Sousa marches, Strauss waltzes, virtuoso whistling by John York and Irish favorites such as "Little Annie Rooney" and "Down Went McGuinty" for two dollars each. Columbia also made and sold sermons by local

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[27] For further discussion of Glass's role in establishing the "normalcy" of Recording Practice, see, for instance, Bill Brewster and Frank Boughton, *Last Night A DJ Saved My Life: the History of the Disc Jockey*. (New York: Grove Press, 2000), pp. 44-49.

preachers, recordings of speeches given by prominent politicians, and numerous other "nonmusical" recordings. By 1892, in fact, the company boasted a catalogue well into the hundreds.

Allegedly, Columbia's success was one of many factors which coaxed Edison back into the sound reproduction market. It was (reportedly) extremely bothersome for Edison that somebody else was profiting by a technology which he himself had invented but discarded as, in his own words, "a mere toy." As Mark Coleman explains,

> unlike the computer mogul Bill Gates 100 years later, Edison was not interested in absorbing his competitors; he wanted to erase them. Edison declined any and all offers to merge or join forces with other inventors. 'Let the best one win' was his unwavering philosophy (Coleman 2003, 12).

In 1893, the oftentimes mercurial inventor established the Edison Phonograph Company as Columbia's primary competition. Under the auspices of this company, Edison managed to reduce production costs for his phonographs, thereby rendering the heavily sought home market for Recording Practice at least economically feasible. The competition between Edison and Columbia did not end at stereo pricing, however. By 1896, Columbia had boosted its catalogue to over one thousand music recordings; not to be outdone, Edison recorded and released music recordings by "the most successful black recording artist at the time," George Washington Junior, and a slew of others (Garofolo 2002, 18). Washington Jr. posted two top selling music recordings for Edison with the unfortunately titled "Whistling Coon" and "The Laughing Song." Even with its costs down and the beginnings of a star system in place, however, Recording Practice, as a mode of musical communications, wasn't yet thriving inside nor outside the home.

Locked in heated battle as they were, neither Columbia nor Edison seemed to notice when Emile Berliner patented, first, the flat disc in 1887, and then the gramophone in 1896. While Berliner is most often credited with having invented the flat disc, he did not. The flat disc was actually considered by Edison a decade prior; Berliner was simply first to follow through on Edison's rejected design. Moreover, Edison would not be the last to reject the flat disc design. When he demonstrated his "zinc flat disc" to the Franklin Institute in Philadelphia during Spring of 1894, Berliner received only looks of consternation from the crowd. Not to be refused, however, and having prophesied during that demonstration "the ability to make an unlimited number of copies from a single master, the use of discs for home entertainment on a mass scale, and a system of royalty payments to artists derived from the sale of discs," Berliner made good on his promise two years later (cited in Garofolo 2002, 19).

In 1896, having already patented the gramophone earlier in the year, Berliner patented his method of using negative master discs ("stampers") "which were then pressed into ebonite rubber biscuits to produce an exact duplicate, or 'record,' of the master" (Garofolo 2002, 19). A short while later, Berliner replaced his rubber discs with shellac 78 rpm pressings, which would remain the industry standard until the North American shellac shortages of World War II. Above all, however, Berliner's gramophone system inaugurated the synergy of mass production with musical communications which remains prevalent to this day, at least in Recording Practice:

> Berliner's process allowed for the creation of a master recording. Eventually, this process led to the mass production of records: an unlimited number of gramophone discs could be stamped from a single master recording. Manufacturing an equal number of Edison cylinders required a bank of records and many repeated takes in the studio. It soon became apparent that musicians and consumers clearly preferred discs (Coleman 2003, 13).

By now, it is a commonplace that music recordings are mass produced via industrial means and, thus, that those means in-and-of-themselves constitute properly "musical" techniques. The full integration of musical communications with industrial mass production for which Berliner provided the technical basis is such an orthodoxy by now that the vast majority of commentators on Recording Practice seem incapable of seeing past the *sound* of music recordings to the industrial procedures which constitute that sound. Indeed, it is not a cultural determination that sound reproduction became preeminent as a means of musical communications, because it was the capacities of sound reproduction technology itself which determined whether or not such communications could exist as even just a possibility. In short, the limits of Recording Practice remain the limits of sound reproduction technology, no matter in what service that technology is put, nor by whom.

"Sarnoffism": Instrumental Reason in Culturalist Robes.

Rather than "cultural determinism," as Brian Winston (2000) suggests, the present objection to "technological determinism" might be more accurately titled "Sarnoffism." After all, as I will now clarify, "cultural determinism" rejects the notion of determination *per se*, not simply the notion that technology is incapable of effecting determination(s). In McLuhan's words:

> In accepting an honorary degree from the University of Notre Dame a few years ago, General David Sarnoff made this statement: 'We are too prone to make technological instruments the scapegoats for the sins of those who wield them. The products of modern science are not in themselves good or bad; it is the way they are used that determines their value.' That is the voice of the current somnambulism. Suppose we were to say, 'Apple pie is in itself neither good nor

> bad; it is the way it is used that determines its value.' Or, 'The smallpox virus is in itself neither good nor bad; it is the way it is used that determines its value.' Again, 'Firearms are in themselves neither good nor bad; it is the way they are used that determines their value.' That is, if the slugs reach the right people, firearms are good. If the TV tube fires the right ammunition at the right people it is good. I am not being perverse. There is simply nothing in the Sarnoff statement that will bear scrutiny, *for it ignores the nature of the medium, of any and all media* (McLuhan 1964, 11-12; my emphasis).

Ultimately, Sarnoffism is a critique of "technological determinism" launched from the perspective of instrumental reason. It is, in other words, an argument about what in actuality constitutes *determination*, whether technological, cultural, ecological, biological, etcetera. According to the Sarnoffist, technologies are instruments to an end — no more, no less. Thus, the Sarnoffist finally defines technology as any instrument or *thing* which figures human motivation as a state of worldly affairs. Technology is, then, a means of mastering and, in so doing, of determining nature, and in the very manner which Enlightenment proposed; that is, by, in the first instance, using technology — whether language, reason, scientific method or, in this case, sound reproduction technology — to construe one's Self as some *thing* capable of dominating nature and, so, as some *thing* which is "beyond" it. Furthermore, this capacity to master and determine nature through technology together suggest, in the final instance, an ability to *transcend* nature and, therethrough, determination.

Technology eventually crystallizes or embodies humanity's alleged capacity to transcend determination, according to the Sarnoffist. In so doing, technology increases humanity's liberation from worldly fetters, depending solely upon how it is used. In fact, all that technology can do to the mind of the Sarnoffist is increase the quantity of human freedoms. Viewed in the long run, then, the Sarnoffist view of technology, no

matter how much it supposedly protests Enlightenment reason, falls squarely within an Enlightenment *Weltenschauung*. That is, Sarnoffism corresponds almost seamlessly with what Charles Taylor defines as a characteristically "instrumental" notion of humanity's position in relation to determination. With the emergence of Enlightenment to the historical fore, according to Taylor,

> a new notion of objectivity rejected the recourse to final causes; it was mechanistic in the sense of relying on efficient causation only. Connected with this it was atomistic, in that it accounted for change in complex things not by gestalt or holistic properties, but rather by efficient causal relations among constituents. It tended towards homogeneity in that seemingly qualitatively distinct things were to be explained as alternative constructions out of the same basic constituents or basic principles.... This science was mechanistic, atomistic, homogenizing, and of course saw the shape of things as contingent (Taylor 1978, 10).

In this respect, Sarnoffism might ultimately be viewed as a particular materialization of that general "amalgamated anthropology" through which Enlightenment reason proposed to clarify and better the situation of humanity in relation to nature. Again, according to Taylor:

> Enlightenment evolved an anthropology which was an amalgam, not entirely consistent, of two things: the notion of self-defining subjectivity correlative to the new objectivity; and the view of man as part of nature, hence fully under the jurisdiction of this objectivity. These two aspects did not always sit well together. They reinforced each other in support of atomism, an atomistic science of nature matching a political theory whose starting point was the individual in a state of nature. But they seemed to conflict on an issue like that of determinism, for example, where the freedom of man as subject seemed compromised by the strict causal necessity under which he lay as part of nature. And this was reflected in diverging notions of the relevance of nature to practical reason (Taylor 1978, 10).

"Sarnoffism": Moral Dilemma/Random Agency.

For the Sarnoffist, the most egregious problem with technological determinism has nothing to do with its accuracy nor its inherent logical consistency. Rather, from the perspective of Sarnoffism, technological determinism is *morally* flawed. According to Brian Winston, for example, technological determinism is problematic for no other reason than that it "implies we are helpless rather than that we can adapt and use technology for our own freely determined purposes" (Winston 2000, 800). Ultimately, for the Sarnoffist, technological determinism should be discarded as an analytic tool because:

> It tends to present us as being comparatively impotent, as malleable consumers, unthinking and unprotesting, in the face of media technology power.... Drawing attention to the ways in which society constantly conditions technological developments.... gives us the power to evaluate technologies to understand that we are not in the grip of forces totally beyond our control (Winston 2000, 801).

In an ironic twist, the Sarnoffist here rather unreflexively enacts, precisely as he denounces, the technological determinist's claim that the efficacies and agencies of technology itself are paramount to understanding what it can be used to achieve. For instance, Winston neglects to explain why his polemic against technological determinism takes the scholarly essay from rather than, say, that of a music recording or a comic book. Nor does he explain why he chose to exploit typographic print to disseminate his views and not, say, cuneiform and clay tablets. In short, Winston exploits certain technologies for the discursive agencies they furnish and for the scholarly authority they connote — a "message" which Marshall McLuhan and many other so-called technological determinists have taken extreme measures to debunk — precisely as he argues technology *per se* to be neutral and transparent, expressive only of

the "contents" with which they are encoded and which they claim reaches decoders uninfluenced by the very thing that frames and facilitates such en/decoding.

In fact, in his zeal to discount what he describes as the *outmoded* interpretive frame of technological determinism, Winston answers the question "how are media born?" by trivializing the influence media exert over the very context of their innovation. He claims, negatively, that social actors are capable of conditioning technological developments and not the other way around, yet offers nothing in support but what amount to articles of faith concerning human nature. After all, if technological determinism is wrong or, at best, outmoded because, in Winston's words, "it tends to present us as being comparatively impotent, as malleable consumers, unthinking and unprotesting, in the face of media technology power," humans must surely be by nature free. As such, they must be, from the very first, masters of their own fate, thinking and protesting, and rationally derisive of any determination (but that they are rationally derisive of any determination, of course). Indeed, the Sarnoffist's moral objection to technological determinism ultimately *assumes* (i) that agency exists, (ii) that it is a source of, according to Winston, "free determination," and (iii) that it constitutes a fundamental constituent of the human condition and, thus, an inalienable component of human nature (even if the Sarnoffist typically considers just the notion of a shared "human nature," or of a shared "humanity," anathema, because it has been problematically construed in the past).

In making these assumptions, Sarnoffism ultimately falls victim to the contradiction which Charles Taylor identifies at the core of Enlightenment reason's "amalgamated anthropology." Sarnoffism maintains, returning to Taylor's comments, "the notion of self-defining subjectivity," but precisely as it maintains "a view of man as part of nature, hence fully under [its] jurisdiction" (Taylor 1978, 10). In

agreeing to this paradox, albeit implicitly, Sarnoffism ultimately reshapes social actors into helpless automata stripped of the very agency they would (re)assign them. For an agent to qualify as such, they *must* have a viable set of options from which and, crucially, according to which they choose. As Dominique Lecourt explains, "the conditions determining.... the modalities of our development as subjects.... are inseparable from" those modalities (Lecourt 2001, 96).

Simply assuming agency, as the Sarnoffist must, does not provide people any material means by which to structure and constitute themselves as agents. Thereby, an assumed agency strips people of that capacity. Short of solipsism, without *a priori* structures to both enable and limit their decision, and without the material means by which to enact the decision they make such as, for example, the techniques which technology embodies, people simply enact a series of random activities. In turn, granted only this "random agency," they emerge as victims of the very "unthinking and unprotesting," ultimately subjugated fate from which Winston and like-minded Sarnoffists would alleviate them; that is, people can only be seen to enact subjugation to the sublime structure of chaos no matter what they do.

"Sarnoffists" Divide and Conquer Technological Determinism.

As a countermeasure against technological determinism, many Sarnoffists attempt to "divide and conquer" the mode, as it were. Robert L. Heilbroner, for example, proposes a "soft" application of the mode to social study, the idea being "to relegate technology from an undeserved position of *primum mobile* in history to that of a mediating factor, both acted upon by and acting on the body of society.... not to write

off its influence but only to specify its mode of operation with greater precision" (Heilbroner 1967, 344-345). Related to this, Merrit Roe Smith discerns a "soft view" of technological determinism which, to her mind, "holds that technological change drives social change but at the same time responds discriminately to social pressures"; and a "hard view, which perceives technological development as an autonomous force, completely independent of social constraints" (Smith 1995, 2). Thomas P. Hughes locates truth claims concerning technology's capacity to shape the social contexts of its innovation and deployment "somewhere *between* the poles" of "soft" and "hard" technological determinism (Hughes 1995, 101).

On a broader level, Bruce Bimber posits three primary strains of technological determinism in twentieth century social study. Bimber terms the first "The Normative Approach." According to Bimber, this approach considers technology as "autonomous and deterministic" and "the norms by which it is advanced" excisable "from political and ethical discourse," such that the "goals of efficiency or productivity" which often guide the process of devising technologies emerge as nothing but "surrogates for value-based debates over methods, alternatives, means, and ends; this is technological determinism's most familiar face" (Bimber 1995, 82). The next approach is what Bimber terms "The Nomonological Approach." This "approach" constitutes the "analytic philosopher's version" of technological determinism to Bimber's mind, and amounts ultimately to a "claim.... that technology itself exercises causal influence on social practice" (Bimber 1995, 83). Only this account, Bimber claims, is "truly technologically deterministic" (Bimber 1995, 89). Finally, Bimber identifies an "Unintended Consequences Approach," which "focuses on the unanticipated effects of technological developments" and uses these to claim technology as:

> at least partially autonomous. Technological developments have a role in determining social outcomes that is beyond human control.... Unintended Consequences accounts posit no specific cultural or social practice that produces the effects of technology;. The focus is on the ability to know completely the consequences of technological choices (Bimber 1995, 85-86).

Merrit Roe Smith adds two more "approaches" to Bimber's inventory. The first "approach" might be called "The Weberian/Ellulian 'Iron Cage' Approach." According to Smith, this "approach" follows Jacques Ellul's (1964) definition of technology as embodied "technique.... as a highly rational, all-embracing governing force" over human behavior, much like a Weberian "iron cage" (Smith 1995, 31). The other "approach" might simply be termed "The Winnerian Nomological Approach," which defines technology according to Langdon Winner's (1977) conception of it as an "erratic and volatile phenomenon, as unpredictable as earthquakes and equally as destructive to human affairs" (Smith 1995, 31).

Again, all of these "approaches" reduce to a single, basic proposition, namely, that some *thing* called "technology" bears social efficacy. This identified, Sarnoffists turn the proposition upside-down, advancing a basic, uniform proposition of their own: some *thing* called "technology" lacks social efficacy. Seldom, however, is any rationale offered as to why technology should be understood to lack social efficacy. In fact, most often, Sarnoffist commentary tends to deploy a number of binary oppositions in lieu of argumentation, discrediting rather than falsifying technological determinism's claims (and, in so doing, caricaturing the latter). The most prevalent of these binaries might be grouped as follows:

1). *monistic/varied, reductive/complex, complete/incomplete, easy/difficult, decadent/ascetic.*

To Leo Marx's mind, "technological determinism" offers only a "monocausal

explanation for the genesis of the presumed determinative power of a technical innovation" — a power which he presumes as well, simply as *never* present — and should be tempered by "a far more various and complex social, economic, political and cultural matrix" (Marx 1995, *xiii*). As such, according to Timothy Taylor, technological determinism amounts to nothing more than a "simplistic notion" (Taylor 2001, 26). Thus, it is "a more complete explanation of technological change in modern times" than technological determinism can offer which is required, according to Bill Bulliet (Bulliet 1995, 215). This, of course, requires a certain amount of sacrifice on the part of commentators, according to Bulliet. After all, as Merrit Roe Smith wonders, "who among us would deny that it is easy to be drawn into technology-driven explanations of cultural and historical process?" (Smith 1995, 35). Finally, then, technological determinism is "decadent" and dangerously "seductive," while Sarnoffism is "ascetic" if not Acquinian, in that the latter positions itself as a system of interpretive behavior which sets its practitioners free from technological determinism's worldly illusion.

2). *nonacademic/academic, intruder/member, dangerous/safe, pernicious/altruistic.* Even if "students of technology have laboured assiduously to complicate" the "simplistic notion" of social change which, according to Timothy Taylor, technological determinism presents, "it is nonetheless the case that this remains a salient viewpoint outside of the academy" (Taylor 2001, 26). Indeed, as Bruce Bimber explains, "the value of forcing technological determinism to retreat.... may be that we are finally able to dispense with it as an intruder into the discussion of the history of technology" (Bimber 1995, 99-100). This "intruder"

or "outsider" is, in fact, supposedly the "most pernicious" of all interpretive modes, because it makes its most basic proposition explicit: that, again according to Taylor, "technology changes us, perhaps more than we change it" (Taylor 2001, 26). "As moths to a flame, we find ourselves continually attracted to its alluring but dangerous glow," Smith warns (Smith 1995, 35). The Sarnoffist response is not to counter through argumentation, however. Here, Sarnoffism openly seeks to advance an injunction against technological determinism in academic discourse, to intentionally render it a "subjugated knowledge," an inaccurate, "pernicious," "dangerous" and "intruding" voice in (properly "academic") discourse about technology.

3). *antiquated/new, Postmodern/Modern, "green"/"veteran."* Echoing the basic, uniform proposition of Sarnoffism, not to mention its jargon, Philip Scranton claims that "no technological teleology is feasible" to account for humanity's historical development (Scranton 1995, 168). Instead, Scranton continues, "more modest efforts to unravel conjunctural complexities replete with productive complementarities and dispiriting antagonisms.... provide[s] the best venues for shrugging off old myths and authoring new ones for our time" (Scranton 1995, 168). This must be a call to return to so-called Modernist academicism, as the "casting off" of antiquated conjecture in favor of "new ones" constitutes, in Scranton's own words, "something that has ever been the historian's task" (Scranton 1995, 168). Jean-François Lyotard concurs. To his mind, in fact, the so-called Postmodern condition is, in its entirety, economically and technologically determined, "an effect of the blossoming of techniques and technologies since the Second World War, which has shifted emphasis from the

ends of action to its means; it can also be seen as an effect of the redeployment of advanced liberal capitalism after its retreat under the protection of Keynesianism during the period 1930-60, a renewal that has eliminated the communist alternative and valorized the individual enjoyment of goods and services" (Lyotard 2000, 167).

In fact, according to Lyotard, analysts must be careful not to assume the empirical veracity of technological determinist claims about how society develops lest they forfeit critical understanding of technology's and capitalist economy's determination of "Postmodernity" in favor of reproducing these determinations *as* knowledge about History (which, of course, nonetheless assumes *a priori* the empirical veracity of technological determinist claims about society, specifically, as that which must be directly *countered* by social study). Furthermore, according to Rosalind Williams, technological determinism is appealing mostly to "a freshman" due to its "simplistic and universalizing determinism" (Williams 1995, 235). Here, again, Sarnoffism does not claim to falsify technological determinism. It simply claims to counter its "freshman" appeal, even if only through conscious regression to preceding discursive modes such as, for example, high-Modernist aesthetic innovation.

Indeed, for all its claims to greater accuracy, Sarnoffism seems capable only of mocking or defaming such concepts as, for example, Neil Postman's "Frankenstein Syndrome" and O. B. Hardison Jr.'s "technological expressivity." Yet the notion that technology influences how people routinely do and consider things is not so far fetched as these commentators might like to believe. Consider, for instance, an automobile. Each automobile objectifies the technique of converting or transducing crude energy into

an increased capacity to travel distance over time. Whenever a person drives — whether it be to visit Mom in the next state, a workday commute or simply to enjoy the increasingly lost art of Sunday driving — they make creative use of that technique.

Furthermore, it is the car itself which determines that road should be driven and not, say, trenches, even if it is people who make roads and determine which specific materials should be required to do so (i.e., asphalt, granite, gravel or wood). As cars become increasingly affordable and, so, increasingly bought and sold, systematization of their use becomes collaterally necessary to control the ebb and flow of traffic both within and between cities, or so the argument runs. Stop signs, traffic lights, speed limits — a kind of grammar for automobility is erected along roadways such that how and where one *should* drive is already determined well before they ever get behind the wheel of a car to drive. Consequently,

> a man who travels by automobile to a distant place chooses his route from highway maps. Towns, lakes and mountains appear as obstacles to be bypassed. The countryside is shaped and organized by the highway.... And all this is indeed for his benefit, safety and comfort; he receives what he wants. Business, technics, human needs and nature are welded together into one rational and expedient mechanism. He will far best who follows its directions[,] subordinating his spontaneity to the anonymous wisdom that ordered everything around him (Marcuse 1990, 143).

A NASA space shuttle demonstrates this on a broader scale. Before inventing the space shuttle, humanity could only imagine itself a species of organism capable of physically exiting earth's orbit. This collective fantasy played a key role in the so-called "Cold War" between America and Russia during the 1950s and 1960s, the race to launch a man into orbit treated by both countries as a way to demonstrate the technical superiority of their respective modes of production over the other.

As everyone knows, Russia won the race; they launched Sputnik 1 on 4 October 1957. America countered by extending the finish line to a double-or-nothing jaunt on the moon. When a crew of American astronauts landed on the lunar surface at next decade's end, lunar trekking was no longer a fantasy but a reality for humanity. America may have used the success of landing on the moon to claim an ideological victory for capitalism over Soviet communism, but its ramifications accrued for all humanity. Once the technology was invented for people to walk the moon, people could never again *wonder* what it might be for a man to play golf while the earth looms overhead. We became a global species, then, the richer of us capable of treading and, in so doing, of conceptually colonizing the moon.

Indeed, as both an identification and a (putative) refutation of one way of thinking about culture and cultural development, Sarnoffism simply cannot address technology as a *thing* itself, though it insists by way of its most basic proposition that technology is indeed a thing (specifically, it is a *thing* which lacks social efficacy). As such, it may be necessary to, in Bertrand Russell's words, "propose for the reader's favorable consideration a doctrine which may.... appear wildly paradoxical and subversive" in relation to Sarnoffism, namely, "that it is undesirable to believe a proposition when there is no ground whatever for supposing it true" (Russell 1928, 1). Sarnoffism simply "supposes it true" that the relation between technology and its users is "complicated," and that technological determinism does not believe the same. Furthermore, Sarnoffists typically treat this "complexity" monistically, as though it were something which always eludes a singular explanation. Ultimately, for the Sarnoffist, technology exists as an instrument to an end (i.e., reading this dissertation and hearing it recited are, for all intents and purposes, fundamentally the same). However, as even Daniel Chandler is willing to concede, "it is a great mistake to jump

from the conclusion that the relationship between technology and society is not simple to the conclusion that the use of a particular technology in a specific context has no consequence at all" (Chandler 2004, 15).

Reconsideration of what is and what is not a technologically determined reading of culture and technology is in order. Not every account of technology which sees it to shape humanity in any manner but instrumentally should be immediately identified as a technological determinism, and summarily dismissed. Moreover, nothing yet has been written which disproves the most basic proposition of technological determinism once and for all. The claim for social efficacy with regards to technology is most often simply discredited through resort to long-standing binaries for discrediting claims to knowledge, or it is countered by the immanently contradictory logic of Sarnoffism, which confirms through its most basic proposition the technological determinist's most fundamental claim, albeit in inverse form. In fact, nobody denies that some *thing* called "technology" exists, nor that it bears social efficacy, even if only as an instrument to an end. This makes technological determinists of everyone.

McLuhan & Determinism.

McLuhan was neither a technological determinist in the Sarnoffist sense, nor was he a Sarnoffist (obviously). In McLuhan's account, those who use media to communicate are not so much determined as they are duped by what he calls the "messages" of media. In fact, McLuhan explicitly warns his readers that to consider technology a fully autonomous entity, which, as Winston notes, constitutes a defining characteristic of "technological determinism" according to its present critics, is negligent. "As long as we adopt the Narcissus attitude of regarding the extensions of

our own bodies [read: technology] as really *out there* and really independent of us," McLuhan explains, "we will meet all technological challenges with the same sort of banana-skin pirouette and collapse" (McLuhan 1964/2003, 74).

Moreover, according to Sarnoffism, for a view of culture to qualify as "technologically determined" or "technologically determining," change can only happen if people devise, re-devise or discard a technology altogether — none of which McLuhan ever advised. He simply argued that everyone was capable of ascertaining the social ramifications of media if only they were offered the right guidance and, thus, that policies governing the use of media might be devised. Indeed, McLuhan's ultimate claim about technology and the media was much more straightforward than it is currently treated. To his mind, the social efficacy of media is far more significant and complicated than can be accounted for by any overly reductive explanation which focuses solely on "content" without considering how every medium in the first instance constitutes and imposes a set of limitations over which "contents" are achievable by it.

In fact, McLuhan's point in stating that "the medium is the message" was not a metaphysical one, as Winston and his Sarnoffist colleagues imply, so much as it was a perhaps overstated assertion concerning methodology, proffered at a time when the discipline of Media Studies was still locked in often heated debate over what should constitute its scope and aims. "It is only too typical that the 'content' of any medium blinds us to the character of the medium," McLuhan writes:

> The electric light escapes attention as a communication medium just because it has no 'content.' *And this makes it an invaluable instance of how people fail to study media a all.* For it is not till the electric light is used to spell out some brand name that it is noticed as a medium. Then it is not the light but the 'content' (or what is really another medium [read: the phonetic alphabet]) that is noticed. The message of electric light is like the message of electric power in industry, totally

> radical, pervasive and decentralized. For electric light and power are separate from their uses, yet they eliminate time and space factors in human association exactly as do radio, telegraph, telephone, and TV" (McLuhan 1964, 9).

Indeed, in his introduction to *The Gutenberg Galaxy* (1962), McLuhan explicitly opposes technological determinism, and precisely as Sarnoffism presently construes it. In McLuhan's words, "far from being deterministic.... the present study [read: *The Gutenberg Galaxy*] will, it is hoped, elucidate a principal factor in social change which may lead to a genuine change in human autonomy" (McLuhan 1962, 99). In his highly influential *The Medium is the Massage* (1967), published only five years later, McLuhan goes further, writing in the very text to which commentators who charge him with "technological determinism" most often refer, that "*there is absolutely no inevitability* so long as there is a willingness to contemplate what is happening" (McLuhan 1967/1996, 25). Such humanistic sentiment hardly becomes the role of "apolitical imbecile" or "technological totalitarian" in which McLuhan is now so often cast. In light of those who overlook or discount these claims, or who argue that McLuhan's broader theorizations do not obtain with his expressed aims, I am reminded of Dominique Lecourt's defense of Michel Foucault: "But at least they are presented as analyses designed to make us think, not as the justification of an ethic to be adhered to" (Lecourt 2001, 97).

That being said, there is a more general problematic with McLuhan's theorizations which needs addressing. While few might disagree with the general thrust of McLuhan's claim that, for example, "interiorization of the technology of the phonetic alphabet translate[s] man from the magical world of the ear to the neutral visual world" — that is, that the emergence of phonetic literacy precipitated a shift from an oral to a literate communications paradigm which undoubtedly achieves as it is

achieved by the ocularcentrism of Enlightenment practice and thought — it is the racial narrative of cultural evolution in which McLuhan grounds his claims that proves problematic (McLuhan 1962, 113). For McLuhan, "literate man" was white, Western and, as a rule, bourgeois. "Oral" or "acoustic man," out of which "literate man" evolved, was racially Other, and not yet developed enough to warrant his categorization according to class. As Eric Leigh Schmidt explains, "McLuhan made Africa his imaginary for constructing through" — literally, a — "black-and-white contrast a sense of what modern Europeans and North Americans were at their epistemic core" (Schmidt 2003, 46). Racially and socially Othered humanity was thus shaped by McLuhan into the negative instance of "literate man," who inhabits "civilized" Western or Euclidean space wherein "space and reason seem to be uniform, connected and stable" (McLuhan 1962, 7). Construed as such, "literate man" becomes the negative instance of "acoustic man" who was embodied for McLuhan by, for example, "African audiences [who] cannot accept our [read: the white Westerner's] passive consumer role in the presence of film" (McLuhan 1962, 113).

Ultimately, then, McLuhan had it that, as Schmidt explains, "*we* look" while "*they* listen" (Schmidt 2003, 47). Of course, neither "*we*" nor "*they*" exist except as conceptual categories. That McLuhan extended these conceptual categories to account for the apperception of putative races (rather than, say, that of nations or classes or sexually-preferenced genders of people, all of which can be equally prescriptive assertions) is demonstrable in the following passage, taken from *War and Peace in the Global Village* (1968):

> When the electric age began to be felt during and after the First World War, the world of Negro jazz welled up to conquer the white. Jazz was a Negro product because it is directly related to speech rhythms rather than to any printed page

> or score. Primitive, tactile art and kinetically charged rhythms in music and painting alike are the normal modes of any non-literate [read: nonwhite] world (McLuhan 1968, 24-45).

Yet a synthesis, "retribalized man," was already emerging from McLuhan's dialectic of humanity by the late 1960s. In his words, "civilization is entirely the product of phonetic literacy, and as it dissolves with the electronic revolution, we *rediscover* a tribal, integral awareness that manifests itself in a complete shift in our sensory lives" (McLuhan 1967, 24-25). In fact, to McLuhan's mind, "the new electronic interdependence recreates the world in the image of a global village" (McLuhan 1962, 127). That is, McLuhan argued that Schmidt's "*we*" were becoming "*they*" again. Only "*they*" were being forced by electronic media back into the properly "tribal" quarters from whence they had emerged, these quarters now expanded by electronic communications machines to global proportions (hence a "*global* village").

The Orientalism inherent in this formulation was not lost upon McLuhan. It was, in fact, central to his understanding of the hybrid of Eastern and Western sensibilities which "retribalized man" concretized. In his own words,

> electric circuitry is Orientalizing the West. The contained, the distinct, the separate — our Western legacy — are being replaced by the flowing, the unified, the fused.... Ours is a brand-new world of allatonceness. 'Time' has ceased, 'space' has vanished. We now live in a <u>global</u> village....a simultaneous happening. We are back in acoustic space. We have begun again to structure the primordial feeling, the tribal emotions from which a few centuries of literacy divorced us (McLuhan 1967, 145).

While many currently reference McLuhan's assertion of a "global village" as one of his more giddy celebrations of electronic media without explicitly addressing the narrative in which he grounds his claims, McLuhan was in fact troubled by the

emergence of this "village." He foresaw certain potentially catastrophic scenarios such as, for example, apocalypse in the guise of World War III, or the mutually assured destruction of the Soviet-American arms race, as effectible by such a spatio-temporally compressed circumstance as a "global village" would be. In McLuhan's words, "unless aware of this dynamic, we shall at once move into a phase of panic terrors, exactly befitting a small world of tribal drums, total interdependence, and superimposed coexistence" (McLuhan 1962, 32). Again, while it would not be unreasonable to speculate that it was a regression to racially Othered circumstances about which McLuhan actually fretted here (that McLuhan sought to, in his own words, "stay the *return* to the Africa within" with which he saw electronic media threaten the West) McLuhan's "retribalized man" was *post-* rather than *pre*-literate, meaning that "retribalized man" represented for him not so much a regression as progress *per se* (McLuhan 1962, 139). Indeed, "post-literacy is a quite different mode of interdependence from pre-literacy," McLuhan explains (McLuhan 1962, 46).

Furthermore, it was not anything like a loss of racial *supremacy* which McLuhan sought to "stay" so much as it was the coming of potentially apocalyptic times ahead for all of humanity. Rather than any so-called "New Times" scenario — rather than succumbing to the seductive pull of what Graham Good calls "Presentism[:].... the belief in the primacy of the present and the refusal to be guided by a vision either of the past or of the future" — McLuhan saw electronic media as prophetic of a potentially catastrophic End Times ahead (Good 2001, 63). This is perhaps indicative of his distrust for the kinds of so-called "New Historicism" eventually modeled by the likes of Michel Foucault and H. Aram Veseer. End Times presumes an explicit teleology, after all. In any event, by no means innocent, McLuhan's theorizations nevertheless remain

much subtler than casting them as only a kind of phenomenological eugenics accounts for, even if they do read as a highly contentious "theory of the races" too often for comfort.

Without apologizing for the racist narrative in whose service McLuhan construes and deploys his broader phenomenology of media practice (indeed, it would be much better to simply drop it, since it is not essential), there is still room to argue that his media phenomenology retains its relevance. I would simply amend it by expressing my agreement with McLuhan that there are people who reject the "messages" of media (i.e., what McLuhan calls "rearview mirrorists" such as, to name an extreme example, the Unibomber) and add that it is far more than likely that something other than one's ethnicity plays the key role in enabling this. McLuhan's overarching maxim that "a theory of cultural change" (which, for however many critics claim the opposite, is *precisely* what McLuhan struggled to construct) "is impossible without knowledge of the changing sense ratios effected by various [media]" seems much less problematic in this respect (McLuhan 1962, 137). Even if it is not entirely methodologically sound, this maxim represents at least an intriguing possibility for how a culturally astute study of media practice such as Recording Practice might proceed.

"Carceral" C/culture, S/self-Sovereign, S/self-Autonomous Subjectivity.

It may be, in fact, that McLuhan's theorizations are disturbing to present commentators, and thus worthy of ridicule and scorn rather than reasoned engagement, because they "disturb" the image of self-sovereign or self-autonomous subjectivity which has recently achieved currency in scholarship of culture, albeit in heavily

mystified guise, given the present hegemony of so-called "Postmodern" metaphysics over the intellectual marketplace. Graham Good summarizes the base tenets of this line of reasoning, collecting its various strands together under the rubric "The New Sectarianism" in a summary which is worth reproducing here in full:

> 'New sectarianism' divides people into demographic groups by race, gender, and other factors, and treats them as group members rather than as individuals. Subsequently, truth is seen either as an outdated concept or as a function of who is speaking: a person's credibility depends on the status of his or her group. All propositions are seen as ideological, as advancing the interests of a group. Knowledge is equated with power. Objectivity and disinterest are dismissed as pretences concealing the motives of the knower (Good 2001, 4).

Consequently, Good continues:

> New Sectarianism" is characterizeable by a "rejection of individuality in favour of group identities.... [such that] support for one's reading is no longer obtained by evidence but from the citation of canonical names and current terms. These sources provide the concepts that are then applied to the text in a kind of superimposition. The theoretical ideas are privileged and are not corrected or modified by the text. In other words, the secondary texts (critical) have become primary, and the primary texts (literary) have become secondary. But no worthwhile criticism has ever come from simply applying a theory to a text. What results is simply a case study, not the record of one individual's reception and interpretation of another's work (Good 2001, 62).

As Good has it, "New Sectarianism" ultimately works to construe what he considers a "carceral" (a "prison-like" or a "prisoner's") view of culture and humanity. Citing Clifford Geertz, Stephen Greenblatt and the later Michel Foucault as exemplary of the "carceral" interpretive tradition — Foucault, in fact, proposes the term in *Discipline and Punish* (1995) — Good notes that each of these theorists and their present

followers tend to posit "culture" as an ever expanding technology for constraining people rather than as a means for them to achieve some kind of meaningful individuation. Furthermore, commentators who subscribe to the "carceral" vision of culture and humanity tend to see "culture" in everyone and everything, such that the term itself becomes meaningless as an identification (even the anthropological sense distinguishes between activities which are and are not properly "cultural" such as, for example, noting daylight somehow, distinguishing between accidental death and murder, falling ill, breathing and experiencing pulmonary diffusion, etc.). "The expansion of the notion of culture to cover everything within a given society, whether political, economic, artistic or legal, leads to the image of culture as inescapably controlling," Good writes. "Thus, culture is something already given, not something to be attained by an effort [at] self-cultivation" (Good 2001, 80). In turn, returning to Terry Eagleton, it becomes:

> Culture, not God or Nature, which is the foundation of the world.... Instead of doing what comes naturally, we do what comes culturally. Instead of following Nature, we follow Culture. Culture is a set of spontaneous habits so deep that we can't even examine them. And this, among other things, conveniently isolates them from criticism (Eagleton 2003, 58-59).

For Terry Eagleton, as for Good, a distinction between "Culture" and "culture" is not irrelevant, nor is one any more "natural" or inherently valuable than the other. Eagleton, like Good, seeks only to problematize those current uses of "culture" which negate the material reality of "Culture" as presumptuous, to say the least. That is, though perhaps strange academic bedfellows, Eagleton and Good agree that "Culture" amounts to more than just a malicious, politically useful ploy by the bourgeoisie to maintain social and economic control. In fact, they consider there to be ample room for

problematizing "Culture's" inevitable valuation(s) of "culture" without neglecting that, according to the latter's negative treatment, the former *generates* "culture" and, in so doing, provides the very means for emancipation it has historically mitigated against. Put alternatively, they agree with Herbert Marcuse that there exists at least a positive:

> political *potential* [in] art [as] art itself, in the aesthetic form as such.... [B]y virtue of its aesthetic form, art is largely autonomous via a vis the given social relations. In its autonomy art both protests these relations, and at the same time transcends them. Thereby art subverts the dominant consciousness, the ordinary experience.... The more immediately political the work of art, the more it reduces the power of estrangement and the radical, transcendent goals of change (Marcuse 1978, *xii-xiii*; my emphasis).

Beyond issues of aesthetics, theorists who subscribe to the "carceral" vision of "culture" — that is, theorists who study "culture" negatively — tend to employ so-called "Post-" methodologies as a supplement to their forays into Postmodern Metaphysics. For example, "Post-structuralism," "Post-colonialism" and "Post-Marxism" now seem to dominate commentators's inquiries. To my mind, this enables commentators to follow a line of reasoning that commits to no analytic program in particular except that which, perhaps Narcissistically, the analyst him or herself deems necessary, the vast majority of "Post" methodologies being characterized by a self-conscious, *a priori* rejection of the concept of "whole" or "totality" as a guiding parameter of analysis. This renders the concept of "class," for example, and the material reality to which it refers, literally *inconceivable*. "Class" is, after all, an historically determined form of the division of labour within any given mode of production, and, thus, a determination of the structural totality which requires its existence precisely as it perpetuates and determines that totality in turn. As Marx explains:

> the division of labour implies from the outset the division of the conditions of labour, of tools and materials, and thus the fragmentation of accumulated capital among different owners, and thus, also, the fragmentation between capital and labour, and the different forms of property itself. The more the division of labour develops and accumulation grows, the further fragmentation develops. Labour itself can only exist on the premise of this fragmentation (Marx 1998, 86).

As a consequence of their rejection of structural determination, it becomes necessary for commentators to posit the conspicuous absence of a Self from any interpretation of culture. Only by claiming the lack of a Self as a theoretical given (that is, only by excising any structure of the Self from interpretations of the social except as a conspicuous absence therein) can individuation *per se* be negated in favor of claiming people as only "group representatives" and culture as "carceral." As Chris Baldick puts it in the widely used *Concise Oxford Dictionary of Literary Terms* (1990), "post-structuralism," for example, "replaces the unitary concept of 'Man' with that of the subject, which is gendered, 'de-centered' and no longer self-determining" (Baldick 1990, 102-103). Thereby, people's supposedly "personal" agencies and activities emerge as, paradoxically, anything but personal. Instead, they come to light as only part-and-parcel of long raging political battles over power and marginality — as only reified metonyms for such battles, in fact — waged by interest groups with which commentators then claim their sympathies or moral revulsion.

This is, even at its core, a self-contradicting mode of thought. It posits humanity as exemplary bearers of a lack of individuality and, thereby, as individuated all the same; the Postmodern (poststructural) subject becomes naught but the negative instance of the Enlightenment (structural) Subject. In turn, the former comes to depend upon the latter for its very existence, for its clarification, specification, definition and

constitution. Thereby, the Postmodern subject and the Enlightenment Subject become only inverted instances of the selfsame self-sovereign or self-autonomous identity.

Furthermore, once the Self is rendered conspicuously absent, or once it is defined as always already "incomplete" or incapable of enclosure ("decentered") and, so, mystified as only a negation of the concept of totality, people emerge all the more as automata manipulatable towards any end, especially since the possibility for transcendent reflexivity is thereby rendered null and void, too (something obviously can't transcend itself if it bears no distinction from the rest of the world). Such an interpretive tack garners for commentary no room to criticize those behaviors which are harmful to humanity at large (i.e., releasing anthrax at a funeral for sport or exploiting workers into an early grave) but on moral grounds. Worse, to render the Self incapable of personal will or ideation exercised contrary to the system(s) of its constitution, to idealize the Self as always incapable of closure, is to excise the possibility that the Self may form value judgments at all, nevermind any value judgments (any qualitative thoughts) besides those forced upon it by its culture from an early age. In this case, people emerge as simply too stupid or, at best, too unconscious to ever work for practical reasons towards the betterment of all, nor to finally discern any tenable conception of the "all."

On a broader level, once the "Post" identification is taken negatively (and how else could it be taken, except apologetically?), the notion of a Post-Structuralism, a Post-Modernism or, for that matter, a Post- *anything* becomes logically flawed. To be "post" anything, in this sense, is to be thoroughly guided and controlled by whatever it is which is purportedly postdated. The conspicuous absence of the precedent necessarily characterizes what follows. Consequently, what follows is restricted to the very same interpretive values and ends (that is, to the exact same critical terrain) it

would counter, albeit in inverted guise. Consequently, what supposedly follows winds up unable to follow; it may only retread as a different version of the same. In this respect, Postmodern Metaphysics and its attendant "Post-" methodologies collate not only a "carceral" vision of culture and society, stripping people of any ability to think and act but in the manner present circumstance requires, but also a "carceral" theory of culture and society which leaves theorists no space in which to theorize but the negative.

At precisely the same time, however, Postmodern Metaphysics seeks to better represent people as unique individuals of gender, of ethnicity and of sexuality (all of which are positive identifications) who were marginalized by previous modes of social administration which failed to recognize their atomistically unique yet corporate characteristics as such. Indeed, according to Terry Eagleton:

> For all its vaunted openness to the Other, postmodernism can be quite as exclusive and censorious as the orthodoxies it opposes. One may, by and large, speak of human culture but not human nature, gender but not class, the body but not biology, *jouissance* but not justice, post-colonialism but not the petty bourgeoisie. It is a thoroughly orthodox heterodoxy.... It is not, on the whole, comfortable with producing statements like 'liberal humanism, for all its pathetic illusions, is in some respects an enlightened enough phenomenon compared with Attila the Hun'; instead, it prefers to save itself the labour of dialectical thought with utterances like 'F. R. Leavis was a reactionary,' while turning in the next breath to denounce absolute judgments and totalizing claims. It knows that knowledge is precarious and self-undoing, that authority is repressive and monological, with all the certainty of a Euclidean geometer and all the authority of an archbishop. It is animated by the critical spirit, and rarely brings it to bear on its own presuppositions" (Eagleton 1994, 26).

The Metanarrative of Rejecting Metanarrative.

Nevertheless, "the rejection of so-called metanarratives [which] is definitive of Postmodern Philosophy" is in full swing in the West (Eagleton 1996, 109). At least, this way of thinking is in full swing in many vectors of Western academe. In fact, rejecting any metanarrative of the Self and, thus, any metanarrative of "the social," constitutes the very metanarrative of our time. But why should the supposedly "unenclosable" or "decentered" (which is to say, self-determining and self-autonomous) group representatives which such an interpretive stance inevitably construes hold sway over others as more accurate or insightful? Indeed, unless commentators at least pretend to more or less truth, why should one worldview dominate another, even when the former is most often offered as an antidote to the latter's tendency to dominate, silence or otherwise marginalize what Jean-François Lyotard reifies under the rather mystifying heading "differends" (individual diversity)? If it is "more truth" (in representation, interpretation, etcetera) that is sought, then Lyotard's by now notorious observation of an "incredulity towards metanarratives" as definitive of a Postmodern cultural sensibility cannot be read as a falsification of metanarrative *per se*, especially since such "incredulity" as Lyotard notes constitutes what must be an exceedingly potent instance of the very thing it disbelieves given its present currency.

No dialectical sleight of hand is required to realize the myriad contradictions which inhere in *methodologizing* Lyotard's observation of a cultural sensibility into an empirical fact. It is only in the service of constituting yet another metanarrative — yet another claim to absolute truth and, thereby, to absolute authority — that metanarrative *per se* can be rejected, after all. In Peter Osborne's words, "the narrative of the death of metanarrative is itself grander than most of the narratives it would consign to oblivion" (in Eagleton 1996, 157). It seeks to consign the vast majority of

Western intellectual production up to roughly 1960 (excepting, for some reason, French modalities) to obsolescence because it is all based upon metanarrative and, so, constitutes naught but one supposedly Machiavellian ploy for dominance after another. As Good jokes, "one might adapt Virginia Woolf's famous announcement of what became modernism" to suit the current Postmodern "moment" and say, without the slightest hint of irony, "that on or about 2 December 1970 human nature ceased to exist" (Good 2001, 81). Thus far, no other explanation than that a shared humanity simply died, crumbled as a construct or vanished, has been offered.

"Incredulity" Towards "Incredulity" (Unless "Incredulity" is Profitable).

Still, such "incredulity" as Lyotard notes of Postmodern cultural values and priorities is precisely what McLuhan sees media innovation to inspire. However, such "incredulity" is, for McLuhan, something to be struggled against rather than to be complied with. At the very least, "incredulity" — destabilization of structural socializing mechanisms — is something worthy of analysis rather than uncritical celebration. Worst of all, in fact, would be to celebrate it. As McLuhan explains, "new technology disturbs the image, both private and corporate, in any society, so much so that fear and anxiety ensue and a new quest for identity has to begin" (McLuhan 1968, 37). That is, far from an immutable truth which humanity has only recently evolved enough to embrace, "incredulity" is thoroughly conventional, something which has existed numerous times, in numerous guises, throughout recorded history. It was "incredulity" which saw the sun God Ankh enthroned and dethroned in less than a century, for example, just as it was "incredulity" which killed Socrates, forced Galileo

to recant, questioned and feared the conclusions of Copernicus and Ptolemy, and which both criticized and lauded Darwin's notion of natural selection. Ultimately, to McLuhan's mind, uncritical acceptance of "incredulity" is uncritical acceptance of those circumstances which make it. Moreover, given that war *is* the only "quest for identity" which McLuhan considers feasible in the face of "incredulity," the prospect of "incredulity" holds exceedingly violent, irrational and inevitably self-destructive overtones in his thought.[28]

As McLuhan had it, not just the metanarrative of "society" must be renegotiated once confronted with unprecedented avenues of communication and Self-constitution (or, once confronted with new communications media) but the humanist metanarrative of the Self, too. Any narrative of cultural change pursuant to the introduction of new communications media which does not account for both the private *and* the corporate "image" is thus inadequate if not irresponsible for McLuhan. It overlooks, in Lecourt's words, "the development into a subject of the unique being that is every human being *as a function of the dialogue they necessarily maintain with the world in which it is given them to live*" (Lecourt 2000, 137; my emphasis). In so doing, it does not even pretend to avert the impending bloodshed of a World War III, ever so scientifically considering even just the notion that media may be associated with the outbreak of wars as an overblown and exaggerated (which is to say, childish) assumption.

If anything, though, in broaching the subject of World War III, McLuhan simply sought to recognize the medium which speakers exploit to constitute dialogue as being, well, constitutive of that dialogue — even if it concerns "incredulity." This is not a

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[28] see Marshall McLuhan, "Violence As A Quest For Identity," *Understanding Me*, eds. Stephanie McLuhan and David Staines. (Toronto: McLelland & Stewart, 2003), pp. 264-276.

truism so much as it is an acknowledgment of limitations. McLuhan simply had it that not just anything can be said nor heard by media, which strikes me as an entirely pragmatic assertion. As such, certain media must be more conducive than others to construction of metanarratives, and media study might be study of metanarratives when relevant (or vice versa). For example, speaking of "the musicological quagmire," David Brackett dons McLuhan's cap to denounce "the metalanguage of music analysis" as "not transparent but.... a medium that comes with its own ideological baggage which will affect what we can say" (Brackett 1995, 19). The medium of music analysis prescribes what can be said by it, in other words. Or, put alternatively, analytic notation is conducive to construction of metanarratives, and this has directly contributed to the outbreak of what's now commonly referred to as "culture wars." A slew of musicologists agree.[29]

The still valuable facets of McLuhan's methodology should not be retained out of anything like partisan advocacy, however. Rather, they should be deployed out of a

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[29] For key artifacts of this debate see, for instance, Adam Krims, "Music Analysis and Rap Music," *Rap Music and the Poetics of Identity*. (Cambridge: Cambridge University Press, 2000), pp.17-45; Susan McClary, "Turtles All the Way Down (On the 'Purely Musical')," *Conventional Wisdom: On the Content of Musical Form*. (Berkeley: University of California Press, 2000), pp.1-31; Henry Klumpenhouwer, "Music Theory, Dialectics, and Post-Structuralism," *Music/Ideology: Resisting the Aesthetic*, ed. Adam Krims (New York: Gordon and Breach International, 1998), pp. 289-310; Lawrence Kramer, *Music as Cultural Practice, 1800-1900* (Berkeley: University of California Press, 1990); Susan McClary, *Feminine Endings: Music, Gender, and Sexuality* (Minneapolis: University of Minnesota Press, 1991); Susan McClary and Robert Walser, "Start Making Sense!: Musicology Wrestles with Rock," *On Record: Rock Pop and the Written Word*, eds. Simon Firth and Andrew Goodwin (New York: Pantheon, 1990), pp. 277-292; Richard Middleton, *Studying Popular Music* (Philadelphia: Open University Press, 1990).

sense of obligation. To my mind, McLuhan's approach is still most relevant for understanding what is fast becoming the primary mode of musical exchange throughout the multinationalized world: Recording Practice. Indeed, how can one even begin to account for the fundamental situation of the Network of Recording Practice as a series of musical interpellations of the broader cultural project of transduction without allowing for at least the possibility that the sound reproduction medium itself is, to borrow O. B. Hardison Jr.'s term, "expressive" in its exploitation? How can one gauge whether or not the sound reproduction medium constitutes a "message" in the Network of Recording Practice, or the "message" of the Network, if the possibility is discounted off the bat for no other reason than that *how such a reading construes humanity* is currently out of favour? It is certainly not falsified.

SECTION TWO

Recording Practice: Musical Interpellation(s).

Recording Practice is, in its entirety, a *product* of transduction, which is to say, it is technologically determined. All of its social impacts are impacts of transduction and, thus, of transducers. It is, in fact, transduction alone which constitutes the technical basis of each of the Network of Recording Practice's various operations; making and hearing music recordings *is* transducing. One either exploits transducers and thereby enters the Network of Recording Practice — and, in so doing, either makes or hears a music recording — or one does not transduce and is therefore excluded from Recording Practice. Thus, Recording Practice interpellates transduction as not only one among

many musical techniques but as the *only* such technique. *One must, inevitably, communicate however sound reproduction technology enables to engage in Recording Practice; whatever people say or hear by Recording Practice is only possible if sound reproduction technology can do it first.* Consequentl as Steven Shaviro explains, "no matter what position you seek.... that position will be located somewhere on the Network's grid[;] no matter what words you utter, those words will have been anticipated somewhere in the chains of discourse" which the Network operationalizes (Shaviro 2004, 4-5). Or, in McLuhan's more poetic words, "as our senses have gone outside us, so Big Brother goes inside" (McLuhan 1962, 32).

On the broadest level, then, Recording Practice names a prescription for discourse; discursive procedure is prescribed in Recording Practice according to what sound reproduction technology enables and, thereby, discourse is prescribed. In the first instance, then, Recording Practice is always musical interpellation of — that is, it is *always* assignment of musical identity to — the industrial procedure of transduction. As such, it is *determined* by the capacities of a particular kind of transducer (i.e., sound reproduction technology), a product of what sound reproduction technology can be made to. One neither converts sonic phenomena into the "content" of a music recording (i.e., mechanical, electric, electromagnetic or digital code), nor does the obverse, except by using sound reproduction technology, which embodies the technique of transduction. Because transduction doesn't guarantee musical experience (because it is useful for as many nonmusical as musical purposes), an association between it and specifically musical experience must be made each time, and while, somebody exploits sound reproduction technology for musical purposes. In fact, by making and hearing music recordings, record innovators and record receivers advocate the musical usefulness of sound reproduction technology precisely as they advocate the musical

utility of whichever energies they transduce in the process. In so doing, they musically interpellate or assign a specifically musical identity to

(i) sound reproduction technology;

(ii) the technique of transduction which sound reproduction technology objectifies; and

(iii) the sound reproduction medium in general, of which sound reproduction technology is an object-form.

Moreover, while every technology which transduces is a transducer, not every transducer transduces sonic phenomena. Even then, not every transducer which transduces sonic phenomena is musically useful (i.e., dictaphones, telephones and walkie-talkies). Recording Practice must thus be musical interpellation of transducers as it is musical interpellation of sound reproduction technology and, therethrough, of transduction. By making or hearing a music recording, then, record innovators and record receivers advocate the musical usefulness of transducers while they advocate the musicality of whichever energies they transduce in so doing (i.e., acoustic, mechanical, electric, electromagnetic or digital). In mandating that these interpellations must always occur for a musical communication to happen, Recording Practice makes a certain variety of technology, and the technique it objectifies, conducive if not indispensable to musical communications. Of course, given this, the obverse must also be true: *Recording Practice must also make musical experience and musical ideation conducive to a particular variety of technology and technique*. As Albin J. Zak III writes:

> Although invented to record the spoken word, sound recording's greatest cultural impact has been through music; and music itself has changed as its production and reception processes have become permeated by technology. Like musical notation before it, sound recording has had a profound influence on

> the way music is made, heard, and thought about. With the ability to transform the ephemeral act of musical performance into a work of art, it has altered the conceptual landscape of our musical culture in many ways, and its influence has made itself felt in all musical idioms (Zak III 2001, 19).

Each time sound reproduction technology is used for some musical purpose, its appropriateness for such a purpose is tested. As obvious as it now seems, record innovators and record receivers must constantly "prove," even if only to themselves, that sound reproduction technology is as useful for musical purposes as it is for, say, office dictation, whenever and while they innovate or receive a music recording. At no point can the success of these interpellations be automatically assumed. "Edison," for instance,

> enumerated the use of phonographs for writing letters and taking dictation.... Music was mentioned, but usually as a form of dictation: You could send love songs to a friend, sing your child a lullaby, and then, if it worked, save up the same rendition for bedtime tomorrow. In keeping with the important public uses of shorthand for court and legislative reports, the phonograph would also provide a cultural repository, a library for sounds (Gitelman 2003, 159).

Sound reproduction technology may always return to any of these "classic," protean functions. After all, the very notion of "progress," however untenable in its archetypal, caricatured form, depends upon the potential for "regression" with which it must constantly contrast itself even just to *be* "progress." The audiocassette, for example, while once the dominant, not to mention the most technologically "progressive," sound reproduction technology on the Western market, was dealt a haymaker blow by the compact disc and those upon whose behalf CDs were manufactured from which it never fully recovered. It is now, once more, primarily a technology for office dictation in the West: the dictaphone.

Transduction: Mediate Auscultation.

Transduction was only *peripherally* meant for musical purposes. It began life as a problematic of hearing. As noted, when Alexander Graham Bell and Clarence Blake affixed a chaff of wheat to the tympanic membrane of a cadaver's dissected ear in 1874, and connected the chaff of wheat to a pane of smoked glass, the resulting ear phonautograph was meant to garner Bell's deaf niece a better understanding of the mechanics of sound production. Thomas Edison listed "reproduction of music" only fourth on his list of suggested uses for the phonograph, after "letter writing and dictation without the aid of a stenographer," "phonographic books for the blind" and "the teaching of elocution." This said, the musical potential of the "talking machine" was not entirely lost upon Edison. Reproduction of music figures before "the 'family record' — a registry of sayings, reminiscences, etc.," "music boxes and toys," "clocks that announce in an articulate voice the time for going home, etc.," "the preservation of languages," "education purposes" and, finally, "connection with the telephone, so as to make that instrument an auxiliary in the transmission of permanent and invaluable records." Still, there is reason to agree with commentators who suggest that Emile Berliner was first to fully engage with transduction's musical potential, Berliner being first to take Edison's fourth suggestion as his only goal in developing the gramophone.

As a problematic of hearing, though — as an "audile technique" or a "listening regime," as it were — transduction precedes any specifically musical applications by over half a century. It begins, according to Jonathan Sterne, with René-Théophile-Hyacinthe Laennec inventing the stethoscope in France in 1816, and with Arthur Leared's invention of the binaural stethoscope in England in 1851. As Sterne explains, "like sound reproduction technologies which would appear later in the century, the

stethoscope.... rendered the human ear an insufficient conductor of sound" (Sterne 2003b, 194).

Both Laennec's and Leared's stethoscopes amplified sound waves, and channeled the subsequently amplified waves through a tubular conductor to doctors's ears. Doctors were and remain incapable of doing this without using a stethoscope. In fact, "physically, the stethoscope was a logical extension of the ear trumpet, which had been in use for centuries," Sterne explains. "Generally cylindrical in shape, [stethoscopes] had an ear piece at one end and a hole at the other that would be placed on the patient's body" (Sterne 2003a, 104). Thereby, the stethoscope physically enabled as it embodied the technique of "mediate auscultation," which is "listening to the body through a medium at a physical distance" (Sterne 2003b, 193).

"The stethoscope was not so much the inversion of the hearing aid as the generalization of its principle," Sterne continues (Sterne 2003 b, 193). According to Sterne, in fact, even as the stethoscope itself

> posited the possibility that doctors could become virtuoso listeners, mediate auscultation endowed its practitioners with a functional disability. The unaided ear was not enough: for centuries, the hard-of-hearing had used ear trumpets as hearing aids. Now doctors — whose hearing was ostensibly healthy — could augment their auditory abilities (Sterne 2003a, 105-106).

However, in "positing the possibility that doctors could become virtuoso listeners" just as it endowed them "with a functional disability," the stethoscope rendered the so-called "naked" or untechnologized ear inadequate to achieve certain socially useful tasks of audition which are, simultaneously, audile virtuosity (i.e., mediate auscultation).

The ("naked") ear's inadequacy to perform mediate auscultation allowed for doctors and patients already involved in the dramas of nineteenth century French and English medical cultures to be newly arranged around a novel prop (i.e., the

stethoscope). Once furnished a stethoscope, doctors could, among other things, avoid physical contact with potentially contagious patients who were also generally of a lower class; avoid laying hands and ear upon the female breast (though not all men were doctors, all doctors were men); posit causal connections between sounds inside a body, imperceptible to the naked ear, and a disease which produced such secret sounds; further abstract, by auditory means, patients into embodiments or "containers" of discoverable sounds which index otherwise undiscoverable diseases (Foucault 1997); and, finally, demonstrate and legitimize their medical authority through virtuoso listening by mediate auscultation, precisely as they thereby demonstrated and legitimized their functional inadequacy to achieve such diagnoses in the material absence of a certain technology.

Mediate auscultation thus rendered the untechnologized ear's inadequacy to "do" certain communications and certain contingent social intercourses a social commonplace. The stethoscope demonstrated precisely as it rectified a certain lack in human physical agency each time it worked, namely, the ability to make and hear particular sounds (i.e., sounds amplified and noted by mediate auscultation). Sonic phenomenon was, in turn, conceived increasingly less as a function of *vox* (the voice) than of *frequency* (motion or vibration), less as a product of human agency than simply another component of the object world. Returning to Sterne's account,

> the technique of mediate auscultation.... was predicated on a relativization of the human voice. In diagnosis, the voice became one sound among many contending for the physician's attention in the audible world. Frequencies were frequencies (Sterne 2003b, 123).

Transduction: "Normalization."

Sterne's narrative of the development of "mediate auscultation" and the stethoscope accords with Timothy Taylor's assertion that, "after a period of use, most technological artifacts are normalized into everyday life and are no longer seen as 'technological' at all" (Taylor 2001, 6). As certain uses for technology concretize into social relations, so, too, does the technology which enables them "normalize" as their locus. Those relations which coalesced around the stethoscope, for example, normalized alongside it as its conventional uses, all of which, at some point, fell and continue to fall squarely under the auspices of mediate auscultation.

Indeed, once mediate auscultation and its enabling technology (i.e., the stethoscope) were normalized, doctors became consumers of stethoscopes while patients became only bodies which furnished the raw materials for doctors's consumptions of the stethoscope. On a broader level, diagnosis by mediate auscultation became consumption of the stethoscope and, therethrough, cannibalism of a sort: auditory consumption of patients's bodies. This was peculiar to nineteenth century France and England, to be sure. However, it would be absurd to argue that the specific dramas of nineteenth century France and England follow the stethoscope wherever it may go. As Patricia Marchuck notes,

> technology is always a social construction[,] but it does not follow that any generation can change it if it so wishes. The industrial revolution, for example, did not have to take the form it did, but once it was underway the momentum carried it through three centuries despite plenty of opposition (Marchuck 2000, 264).

Moreover, "normalization" should not be reproduced in commentary of technology and technological practice as happens when commentators take the *practice*

of "normalization," which amounts to social accommodation of a certain technology, as though it were extricable from the very technology which enables it. *Thereby, convention and arbitrariness are taken to mean "without substance," which is to say, "sheer randomness" or "chaos."* But there is a specificity to each technology, a *substance*, which commentators can and must address, lest they banish "normalization" from critical understanding even under the auspices of paying it its proper due in analysis. That is, commentators must refuse to take articles of faith such as Timothy Taylor, for one, professes as empirical fact: "whatever music technology is.... it is not separate from the social groups that use it.... from the individuals who use it; it is not separate from the social groups and individuals who invented it, tested it, marketed it, distributed it, sold it, repaired it, listened to it, bought it, or revived it" (Taylor 2001, 7).

Following this line of reasoning, Sterne, for example, even after what strikes me as one of the most nuanced and fruitful interrogations of technology currently in print, can only end his interrogation by positing the practice of sound reproduction — that is, *using sound reproduction technology for communicative purposes* — as a development of "mediate auscultation.... and not the stethoscope *per se*" (Sterne 2003b, 123). This seems an injunction to take culture as a determinant of technology and not the other way around, even when Sterne's analysis of the stethoscope clearly posits culture and technology as *mutually* determining, with the "stethoscope *per se*" as efficacious in the first instance. In response, one might simply wonder what *exactly* media auscultation 'normalized,' then? Or, put alternatively, how does one "do" medical diagnosis by mediate auscultation if not by capitalizing on what the stethoscope can be made to do in a particular manner which makes sense given a particular social circumstance? Indeed, what *is* a stethoscope, then? And for what *exactly* do practices of "normalization" such as, for example, mediate auscultation, find social accommodation?

What the stethoscope maintains regardless of circumstance is its enabling and objectification of an otherwise impossible technique for amplifying, hearing and, in so doing, for *making* hitherto unknowable sounds. If there is a commonality between each use of the stethoscope from its inception to present, it is that its users are socially venerable as auditors only by their knowledge of how to mediate auscultate. It was, in fact, a certain *inadequacy* of the voice and ear which "the stethoscope *per se*" instantiated, mediate auscultation amounting to accommodation or "normalization" of that manufactured inadequacy *as* a key constituent of Western medical practice. Indeed, "researchers' use of [the stethoscope] allowed for new phenomena to be observed which, in turn, led to conception of human sense *as* and *through* instruments," rather than as human sense *per se* (Sterne 2003a, 48).

Transduction: Manufactured Inadequacy to Manufactured Incapacity.

Mediate auscultation established the general framework for the culture of sound reproduction which exists today. Each time it works, sound reproduction technology demonstrates that there are certain permutations of, and uses for, sonic phenomena which the voice and ear alone simply cannot make or mark. As such, transduction intensifies that inadequacy of the voice and ear which mediate auscultation first "normalized" as something demonstrable and rectifiable by the stethoscope, and which was converted through certain medical intercourses into a social commonplace *as* the cultural practice of mediate auscultation. In so doing, and following mediate auscultation's lead, the practice of transduction demonstrates that certain social intercourses exist which may only happen by using a particular variety of technology in particular ways.

Indeed, as transduction simultaneously demonstrates, instantiates and rectifies a certain lack in human physical agency each time it operates, human sense itself becomes a capacity of a particular kind of communications machine, both in concept and in practice. Again, the mechanism of transduction by which arguably the first sound reproduction technology — Alexander Graham Bell's and Clarence Blake's so-called "ear phonautograph" of 1874 — worked was the tympanic membrane of a human ear. This membrane was excised from "that folded mass of flesh on the side of the head" of a cadaver (Sterne 2003a, 22). Thus, as Sterne notes:

> The ear phonautograph did not use the whole ear.... only the middle ear, which in a living person ordinarily focuses audible vibrations and conveys them as sound. In using the tympanum or ear drum and the small bones to channel and transduce sonic vibrations, the ear phonautograph imitated (or, more accurately, isolated and extracted) this processof transducing sound for the purpose of hearing.... It places the human ear, *as a mechanism*, as the source and object of sound reproduction (Sterne 2003a, 32).

It was not the ear *per se* but its tympanic membrane which provided Bell and Blake the model for manufacturing its uselessness in certain auditory tasks, then. Once Bell and Blake isolated and reified this function as a capacity of their "hearing machine," the tympanic membrane could be, in Sterne's words, "abstracted from the body and defined... in almost purely mechanical terms" (Sterne 2003a, 52). Transduction thus began life as a human capacity, or a "vital power," which was literally and symbolically abstracted from humanity under the auspices of technical innovation. Once thereby abstracted, the middle ear could be developed into an operations principle of a particular variety of machine, and perfected such that the machine which objectifies it supersedes all humanity in terms of audile capacity. However, while mediate auscultation rendered the voice and ear *inadequate* for making

certain communications, transduction renders the voice and ear outright *incapable* of any social intercourses as are made by it. Ultimately, then, Recording Practice achieves as it was achieved by a certain manufactured *incapacity* of the voice and ear, by a certain conventional lack in human physical agency which transducers demonstrate, instantiate and rectify each time they are used to make a transduction happen. By Recording Practice, this manufactured lack is given musical relevance and utility.

However, it must be noted once more that our collective incapacity to transduce how Recording Practice requires us to does not *guarantee* musical experience. It is just as useful for selling office dictation equipment as it is for selling music technology. Indeed, *it has been the task of record innovators and record receivers during the past century to associate transduction with musical experience, to make of its "obsolescing" a base condition of all musical exchanges as occur by it* (McLuhan 1975; McLuhan 1977).[30] By making and hearing music recordings, for instance, record innovators and record receivers convert or "normalize" the inadequacy of "naked" speech and hearing in the face of transduction — they convert human oral/aural capacity *per se* abstracted from the body into an operations principle of a certain kind of object — into a social commonplace, namely, Recording Practice. Only because they are each a musical interpellation of sound reproduction technology, of transduction and of transducers (and, finally, of that conventional incapacity of the voice and ear which these together make) do any "musical" operations of sound reproduction technology qualify as Recording Practice.

To be clear, this is not to say that transduction nor sound reproduction technology *create* Recording Practice. It is simply to acknowledge that transduction, *as a*

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[30] I use the term "obsolescence" here in McLuhan's sense, that is, to denote the uselessness of something which may nevertheless continue to figure in certain procedures of communication.

capacity of sound reproduction technology, is assigned musical identity each time someone mixes, tracks, receives a music recording or does anything else which Recording Practice requires, and that Recording Practice simply does not happen but for transduction. Thus, on the broadest level, Recording Practice must finally name a strategy for musically interpellating transduction and, thereby, a certain incapacity of the voice and ear which transduction makes. In doing this, Recording Practice *enacts* the properly "musical" (which is to say, the properly "social") commonplace into which our collective incapacity to transduce was and still is converted.

Transduction: Sound Reproduction.

It is generally argued that Recording Practice, which is what obtains in the musical sphere given transduction's "obsolescing" of human aural faculty *per se*, works to "reproduce" sound, and that this accounts for people's willingness to have certain of their "vital" powers "obsolesced" as they make music. We are, it is claimed, simply using machines instrumentally, to achieve a kind of communication we want to achieve but could not otherwise. Even if most people do not, themselves, generally make those machines — this is, of course, what only certain corporations do — we nevertheless use them for our own purposes. It just so happens that most people do more or less the same thing whenever they use sound reproduction technology for musical purposes: Recording Practice. Timothy Taylor most clearly articulates the logical basis of this view. To his mind, "any music technology" has designed into it "specific uses.... but users, through practices, undermine, add to, and modify those uses" (Taylor 2001, 38). But transduction is *not* a technique for reproducing sound except in name, even if commentators generally assume it is. Nor, crucially, is it *designed* to be; it is only

advertised as such. In fact, transduction instantiates a moment of *silence* in the so-called "sound reproduction" process, a fact which the notion of transduction as a technique for reproducing sound conceals. This silence must *always* obtain between those two transductions which together comprise a "sound reproduction."

Indeed, a "sound reproduction" is *only* possible by using sound reproduction technology. As Jonathan Sterne notes, such technology either "turns sound into something else," or turns that "something else back into sound" (Sterne 2003a, 22). Because that "something else" cannot be a sonic phenomenon (it is specifically "something else") every sound reproduction is *characterized* by a silence which obtains between when a sonic phenomenon is transduced as "something else," and when that "something else" is transduced as a sonic phenomenon. Thus, while the likes of Jonathan Sterne, for example, posit both transductions of the sound reproduction process as equally essential, transduction of acoustic energy as another kind of energy (i.e., mechanical, electric, electromagnetic or digital energy) must occur for the obverse to happen. Sound reproduction is, to begin with, transduction of acoustic energy into another kind of energy, which is silent; only after is it transduction of mechanical, electric, electromagnetic or digital energy into acoustic energy. Finally, then, "sound reproduction" is production and consumption of acoustic, mechanical, electric, electromagnetic and digital energy *per se*.

Thus, what actually happens by sound reproduction is transduction of acoustic energy as other kinds of energy and, *only after*, vice versa. The only way to terminate the "silence in between" which subsequently obtains is to undertake the second transduction of sound reproduction. In so doing, one constitutes sonic phenomena as the "content" of sound reproduction technology (specifically, of music recordings) instructs; one *realizes* this "content" as the sonic phenomena it is configured by record

innovators to represent *if* given a future transduction. Only thereby does something called a "sound reproduction" occur. As such, the notion of "sound reproduction" which currently prevails constitutes only another variation on that theme which Victor propagated beginning just under a century ago (which I outline in Chapter 1). Such a perspective implicitly claims, as the Sarnoffist claims, that technology *only* prostheticizes (which is to say, at the same time, that technology never *determines*), even if humanity simply lacks the physical resources to create a "silence in between" over the course of a musical communication.

SECTION THREE

Mastering the Network of Recording Practice.

That Recording Practice is, indeed, technologically determined, and that it does not reproduce sound so much as it enacts musical interpellation of transduction, is probably clearest in what's called "the mastering process." This is the final step of record innovation, when "songs are adjusted for their optimum level, sequence, and tonal balance" (Chappell 2003, 187). "Highly paid and technically skilled mastering engineers often make a significant contribution to a song becoming a hit," Chappell notes. "The mastering engineer makes sure that a tune can translate to a variety of playback systems" (Chappell 2003, 187). Put simply, a mastering engineer ensures that the record "content" which record innovators procure and configure sounds optimally when it is given a transduction through *any* system of playback hardware. As such, the mastering engineer may well be the most essential agency in record

innovation now. It is, after all, this agency which has final say as to how a music recording will sound.

Mastering engineers use several computer programs to do their work. Most often known as "plug-ins," these programs are made to be compatible with a slew of digital audio editing programs (they are "plug-ins," not "stand-alones"). Such programs may include, for example, Matrix Reverb, Parametric EQ or any number of sound processes. Furthermore, they are not necessarily designed for purely musical purposes. The so-called "Waves L1 Ultramaximizer," for example, is manufactured for musical purposes and for mastering video game applications. As Chappell explains:

> This 'look-ahead' limiter [read: the Waves L1 Ultramaximizer] analyzes a signal and reduces the dynamic range so the whole track can be turned up louder. The loud parts are still loud, but the quiet parts are louder than they were. The overall mix doesn't sound any different, just more energetic (Chappell 2003, 188).

Perhaps the most significant capacity of the mastering engineer is to undertake what's tellingly called "normalization." This practice ensures that all the completed tracks of a music recording conform to the same dynamic parameters, that each track on a music recording reaches so-called "peak levels" during and by record reception. To normalize, a track or sequence of tracks must first be inputted into an audio editing or multitrack recording software of some sort, as a configuration of digital code. Then one simply chooses "normalize" from the program's menu and, according to Chappell:

> The software scans the specified digital audio file or file regions and notes the level difference between the highest signal peak and the theoretical maximum, which defines the upper limit of the available headroom. The program then raises the file's overall level so that the highest peak reaches its full code. For

> example, suppose that a file's highest peak is 7.2dB below full code. Normalization will apply +7.2dB of gain to the entire file so that the highest peak now reaches the maximum level (Chappell 2003, 189).

Normalization renders a particular sequence of mechanical, electric, electromagnetic or digital code suitable for deployment in stereo systems according to certain conventions of volume, then. Through computerization, such conventions become an "operational and practical *fact*" (McLuhan 1964/2003, 8). As in the mastering process at large, normalization thus treats what only later may become musical as code first, and renders that code amenable to the "communications system" of Recording Practice, which enables code or record "content" to become musical only in the last instance. In fact, normalization, and the mastering process at large, begins and ends with data. Both processes account for record reception in the musical labor of Recording Practice as a kind of data processing in the first instance and, only after, as a practice of hearing and reasoning sound.

Thus, the mastering process probably best clarifies how Recording Practice is determined by transduction. It is the ultimate phase of record innovation, the last thing done to perfect the production of any musical communication which is made by record innovators. Yet the mastering process treats the musicality of code, which is transduced or transduceable acoustic energy, as only a secondary consideration. What matters in the end is that the code suits certain mathematical formulae which are considered by record innovators to optimize a music recording for transduction by any system of playback hardware. Once mastered, a music recording may never be more nor less dynamic than how it is normalized to sound. In this respect, mastering conforms certain key aspects of music innovation — i.e., dynamic range, dynamic levels, etc. — to the dictates of playback hardware. In so doing, it conforms record

innovation itself, and its products, to the limitations of technology which are made and distributed for the express purpose of record reception.

In short, anything which can be said by Recording Practice can only be said through proper exploitation of sound reproduction technology and, thereby, the technique of transduction. Record innovators who do not master what they innovate run the risk of furnishing record receivers with code which does not sound optimally when processed through whichever transducers they use to undertake their record receptions, even if what sounds optimal is conventional. The mastering process is, therefore, about rendering code amenable to whichever sound reproduction technology it happens to be transduced by and, only after, to whomever hears the results (it is about making code amenable to any and all systems of playback hardware). As such, it simply cannot consider any record receiver, nor any record reception, in particular, contenting itself to render all such receivers and receptions as likewise as possible.

Finally, then, the mastering process clarifies what Duncan J. Watts and Steven H. Strogatz call the "small-world network" which Recording Practice makes of musical communications (Watts and Strogatz 1998, 440-442).[31] Borrowed from so-called "complexity theory" — itself a response to so-called "chaos theory" mathematics and science — "small-world network" theory is perhaps best explained by Mark Buchanan:

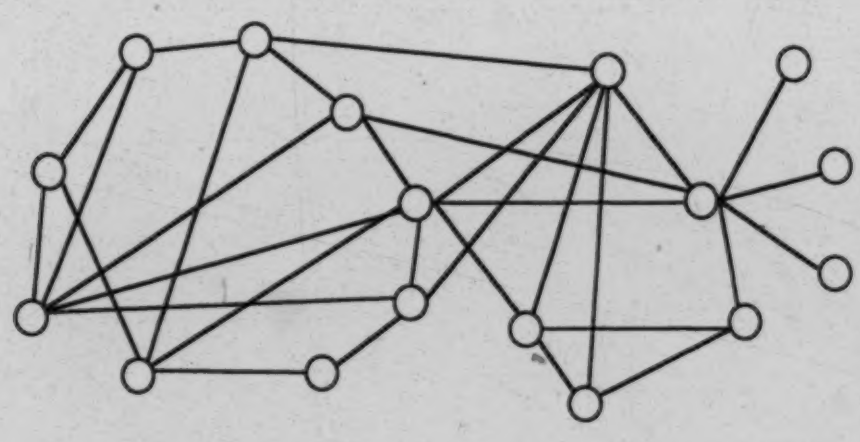
> No liver or heart or brain is built from genes; rather, each gene contains instructions for making molecules known as *proteins*, which then take their place in a web of tens of thousands of other different proteins, all interacting with one

[31] Duncan J. Watts & Steven H. Strogatz, "Collective dynamics of 'small-world' networks," *Nature* 393 (1998): 440-442. The title "small-world" is borrowed from Stanley Milgram's theory of "the small-world problem," which has been popularized recently under the heading "six degrees of separation," in Stanley Milgram, "The Small World Problem," *Psychology Today* 1 (1967): 60-67.

> another in complicated ways. To comprehend what makes us alive, and especially what distinguishes us from plants, will require insight into the architecture of this vast network; our sophistication is not due to one or another protein, but to the delicate design of the entire network (Buchanan 2002, 16).

As such, "small-world" network theory posits humanity as a series of beings interconnected as "nodes" (i.e., people). It is not the human being *per se* which makes him or her what s/he is — it is not anything specific to a person which makes them human — but, rather, what s/he shares with everyone else, which are certain networked functions and agencies that only together promote "humanity." Thus, networks constitute a certain "essence lying behind all physical objects" (Buchanan 2002, 16). In the case of humanity, as "small-world" network theory has it, it is networks which are the "essence lying behind" each and every one of us.

Figure 12. A "small-world" network, adapted from Strogatts and Watts (1998). Note the gap in the bottom left corner, which implies a Prime Mover for the network.



Recording Practice renders the metaphor of "small-world network theory" an operational and practical fact of musical communications. A person may only manipulate sound reproduction technology and, therethrough, transduction to make or hear a music recording. Thus, they have only a limited set of things to say, and only a limited set of ways of saying anything, to begin with. It is, then, ultimately sound reproduction technology itself which is the "essence lying behind" all musical communications as occur by Recording Practice. Human specificity is only involved as a means of navigating the "small-world" network of Recording Practice, as a manner of choosing between that limited set of discursive agencies with which sound reproduction technology furnishes its users. In turn, each moment involved in making or hearing a music recording becomes a function of how one operates a particular variety of technology. The "essence lying behind" all musical communications as occur by Recording Practice is always a kind of technology and a technique which that technology objectifies, namely, sound reproduction technology and transduction.

SECTION FOUR

Summary & Conclusion.

In the final analysis, Recording Practice is technologically determined. All that can be said or heard by making or hearing a music recording is a function of what sound reproduction technology is manufactured to be capable of, and what else it can be made to do. Sarnoffism simply cannot address this fact because, as McLuhan notes,

"it has never occurred to.... Sarnoff that any technology could do anything but *add* itself on to what we already are," which is to say, the Sarnoffist thinks about technology only instrumentally (McLuhan 1964, 12; his emphasis). Yet there would be no Recording Practice, no mastering process, neither making nor hearing music recordings, without sound reproduction technology; *but there is Recording Practice regardless of who specifically does each of these things.* As such, we "add" ourselves onto sound reproduction technology through transduction, just as such technology "adds" transduction on to us, as an unprecedented communicative agency. In McLuhan's words:

> physiologically, man in the normal use of technology (or his variously extended body) is perpetually modified by it and in turn finds ever new ways of modifying his technology. Man becomes, as it were, the sex organs of the machine world, as the bee of the plant world, enabling it to fecundate and to evolve ever new forms. The machine world reciprocates man's love by expediting his wishes and desires, namely, in providing him with wealth (McLuhan 1964, 51).

What Is A Mix?
The "Content" of the Network of Recording Practice

One of the first times Marshall McLuhan spoke the words, "the medium is the message," was 3 March 1959, at a gathering of more than one thousand educators at a conference in Chicago sponsored by the American Association for Higher Education. McLuhan used this dictum to explain, in as succinct a manner as possible, why it was that, as far as the educators at the conference were concerned, students seemed less interested in learning how to read than ever before. McLuhan's answer was both profoundly simple — i.e., "blame television" — and complex. Indeed, it was McLuhan's contention that, as Stephanie McLuhan and David Staines argue, "the electronic revolution of television has made the teacher the provider no longer of information but of insight, and the student not the consumer but the co-teacher, since he has already amassed so much information outside the classroom" (McLuhan and Staines 2003, 1). In McLuhan's words:

> Taken in the long run, the medium is the message. So that when, by group action, a society evolves a new medium like print or telegraph or photo or radio, it has earned the right to express a new message. And when we tell the young that this new message is a threat to the old message or medium, we are telling them that all we are striving to do in our united social and technical lives is destructive of all that they hold dear. The young can only conclude that we are not serious. And this is the meaning of the decline of attention.... It would be easy to explain and confirm this point historically. Print simply wiped out the main modes of oral education that had been devised in the Greco-Roman world and transmitted with the phonetic alphabet and the manuscript throughout the medieval period. And it ended that 2,500 year pattern in a few decades. Today the monarchy of print has ended, and an oligarchy of new media has usurped

> most of the power of that five hundred year old monarchy. ....To treat [media] as humble servants (audiovisual aids) of our established conventions would be as fatal as to use an X-ray unit as a space heater (McLuhan 2003, 3-4).

Five years later, in 1964, McLuhan expanded his dictum to encompass a global definition of the media, and a still convincing — though largely misunderstood — grand narrative of humanity's relation to the media, which spans human history from the time of the wheel to the age of Sputnik and satellites. The result was McLuhan's now classic opener to *Understanding Media: the Extensions of Man* (1964), "The Medium is the Message." Whether or not readers agreed with the claims about the media which McLuhan made in this essay, the primary thesis about the media which McLuhan advances in it was, by almost every account, startling:

> In a culture like ours, long accustomed to splitting and dividing all things as a means of control, it is sometimes a bit of a shock to be reminded that, in operational and practical fact, the medium is the message. This is merely to say that the personal and social consequences of any medium — that is, of any extension of ourselves — result from the new scale that is introduced into our affairs by each extension of ourselves, or by any new technology. Thus, with automation, for example, the new patterns of human association tend to eliminate jobs, it is true. That is the negative result. Positively, automation creates roles for people, which is to say depth of involvement in their work and human association that our preceding mechanical technology had destroyed. Many people would be disposed to say that it was not the machine but what one did with the machine that was its meaning or message. In terms of the ways in which the machine altered our relations to one another and to ourselves, it mattered not in the least whether it turned out cornflakes or Cadillacs (McLuhan 1964, 7-8).

While McLuhan's dictum is now chiefly claimed to obfuscate the role that people play in determining — or, at the very least, in *shaping* — a medium's social consequences, McLuhan's point was, as Niels Weber puts it, "far more boring" than this criticism implies (Weber 2003, 238). "Like Marx and Engels, who had to work through the ideologies of superstructure in order to find out about the basic structures of economic and technical conditions," McLuhan claimed that "over all the sounds and colorful images of semantics[,]" media theorists "must not forget 'what is real'," "namely, the media itself" (Weber 2003, 236).

In fact, McLuhan's primary aim in describing the medium as "the message" was simply to clarify that, in Kittler's words, "media define our situation" and, as such, "deserve a description" by media theorists (Kittler 1999, 1). That is, in claiming the medium as "the message," and not what the medium is used to communicate, McLuhan ultimately sought to clarify that, returning to Niels Weber, "a person wishing to look into things closely will be unable to avoid technology" (Weber 2003, 234). "Consequently," Friedrich Kittler continues, "those messages or meanings with which communications technologies literally fit out so-called souls for the duration of a technical epoch do not count; all that counts, strictly according to McLuhan, is their switchings, this schematism of perception in general" (Kittler 1999, 5). Our "situation becomes recognizable," then, only if analysts of Recording Practice "succeed in hearing the circuit diagram itself in the synthesizer sounds of a compact disc or in seeing the circuit diagram itself in the laser storm of the discotheque" (Kittler 1999, 10).

Indeed, McLuhan did *not* claim that the "content" of media was, nor should be, immaterial to analysis. In fact, he claimed just the opposite. To McLuhan's mind, the materiality of communications should always be at the forefront of analysts' concerns. After all, he would later claim, a medium is finally nothing more than raw materials

which people sculpt into meaningful patterns to *figure* or "make" communications. Mark Pattison understood this already in 1875:

> Writers are apt to flatter themselves that they are not, like the men of action, the slaves of circumstance. They think they can write what and when they choose. But it is not so. Whatever we may think and scheme, as soon as we seek to produce our thoughts or schemes to our fellow men, we are involved in the same liabilities to failure or half-measures as we are in life and action (cited in Innis1950, 60).

That is, as Marshall McLuhan wrote to G. E. Stearn:

> There is a kind of illusion in the world we live in that communication is something that happens all the time, that it's normal.... Actually, communication is an exceedingly difficult activity. In the sense of a mere point-to-point correspondence between what is said, done and thought and felt between people — this is the rarest thing in the world. If there is the slightest tangential area of touch, agreement, and so on among people, *that* is communication in a big way. The idea of complete identity is unthinkable. Most people have the idea of communication as something matching between what is said and what is understood. In actual fact, communication is *making*. The person who sees or heeds or hears is engaged in making a response to a situation which is mostly of his own fictional invention (cited in Cavell 2002, 5).

As such, the "raw materials" which people sculpt to make "content(s)," and the tools/communications technologies they exploit to take recourse to those "raw materials" in the first instance, play a *constitutive* role in communications. They determine which "contents" can be sculpted into, or perceived as, "communications." Thus, to study the sound reproduction medium, for instance, one must not only, again, "succeed in hearing the circuit diagram itself in the synthesizer sounds of a compact disc" but also "hear the circuit diagram" of the compact disc itself, even while it is silent (Kittler 1999, 10).

Indeed, the medium is "the message" because "messages," or "contents," are literally sculptures of matter. Because all matter is finite, all media offer only a finite set of possible configurations and, thus, a finite set of communicable "contents." In other words, media are, at base, limited inventories of communicable "contents" or "terms." It was, according to McLuhan, simply *essential* that analysts of the media find ways to come to terms with this fact. After all:

> If the formative power in the media are the media themselves, that raises a host of large matters that can only be mentioned here, although they deserve volumes. Namely, that technological media are staples or natural resources, exactly as are coal and cotton and oil. Anybody will concede that a society whose economy is dependent upon one or two major staples like cotton, or grain, or lumber, or fish, or cattle is going to have some obvious social patterns of organization as a result. Stress on a few major staples createsextreme instability in the economy.... for a society configured by reliance on a few commodities accepts them ass a social bond quite as much as the metropolis does the press. Cotton and oil, like radio and TV, become 'fixed charges' on the entire psychic life of the community. And this pervasive fact creates the unique cultural flavor of any society (McLuhan 1964, 22).

Road Map to Chapter Three.

In this chapter, I attempt to inventory the broad contours of those "possible" terms with which the sound reproduction medium furnishes those who use it to engage in Recording Practice. To my mind, all that one may *ever* hear by record reception is a mix — that is, sound arranged in space somehow — and, thus, all that one may ever make by undertaking record innovation is a sculpture of mechanical, electric, electromagnetic or digital code, which represents a mix.

In Section 1 of this chapter, I study the mix and the mixing process. In turn, I devise a tool, which I call a "mix compass," for visually objectifying a mix in order to analyze it. In the process, I argue that mixes are manners of "hearing" more so than collections of genuine sonic phenomena as such. In Section 2, I argue that, rather than the neutral container of sounds as which mixes are typically treated by commentators on Recording Practice, mixes have the capacity for semiosis, specifically, to signify the conspicuous presence or conspicuous absence of "sound fidelity" (or, "documentary authority") as a property of whichever sound a mix "hears." I then attempt to demonstrate the operational impossibility of "sound fidelity" in Recording Practice; that "sound fidelity" is something which may only be signified, never achieved. Finally, in Section 3, I study record reception as the final moment in the mixing process, because it is only during record reception that a mix reaches fruition as sound. I also argue that a strict focus upon music recordings as "texts," in the poststructural and postmodern senses of the term, tends to obscure the fact that Recording Practice constitutes a musical interpellation of transduction — and, therethrough, of sound reproduction technology — more so than an "extension" of "Live" or "Concert" exchange into the realm of mass production.

SECTION ONE

Mix: Listening Position/Past Tense Aural Narrative of Sonic Phenomena.

Whenever a music recording sounds, two things are heard simultaneously: (i) sound in particular and (ii) a certain spatial arrangement of that sound. *The sound which record reception makes cannot exist but in such an arrangement.* Thus, one only ever hears a mix by record reception, not a genuine sonic phenomenon as such.

This is the case even if a music recording stores only a single sequence of transduceable code. Any record "content" only ever transduces spatially relative to transducers and, as such, constitutes a mix. Consider, for example, Nick Drake's "Horn" (1972). The fifth track on Drake's classic *Pink Moon* (Island: 1972) LP, "Horn" is an instrumental segue, played by Drake on an acoustic guitar, which connects "Which Will" to "Things Behind the Sun," tracks four and six respectively on *Pink Moon*. "Horn" consists of a simple improvised melody in C# minor, plucked over a tonic drone. However, "Horn" is not just a collection of pitches making some kind of melody, harmony and counterpoint. It is also a collection of pitches making some kind of melody, harmony and counterpoint, which are situated somewhat stereo left of center and which fade out during the last four seconds.

Indeed, a mix is *opaque*. What one hears by record reception is a mix, which is to say, sound fixed in space somehow. This is always the case.

Arranging sound in space to make some kind of "musical" sense, every music recording constructs a particular listening position whenever it is given a record reception. A mix is that listening position, which is why I argue that a mix "hears." Furthermore, by "hearing," each mix situates record receivers in relation to what they

hear, which is only ever what a mix "hears" first, according to certain reception paradigms.

The mix for "Can't Buy Me Love" (1964), for instance, creates a listening position which is "before," and "facing," the Beatles. This mix "hears" Paul McCartney's vocal track furthest in front, slightly ahead of George Harrison's and John Lennon's electric and acoustic guitars, McCartney's bass track and Ringo Star's drums. In so doing, it "hears" The Beatles perform such that Paul McCartney's vocals are always spatially prioritized. The reception paradigm which this mix — that is, which this spatial prioritization of sound — borrows from, is that which obtains given the separation of performer from audience in the concert-hall division of stage (performer's space) from seating (audience's space).

Figure 13. Visual Rendering of the Mix for the Beatles's Can't Buy me Love" (1964)

That being said, this division is obviously idealized on the recording. Every record receiver is situated the same by the mix for "Can't Buy Me Love." That is, record receivers *must* hear George Harrison and John Lennon perform even while they are dead, for instance, and always from a front row and center perspective. Furthermore, the listening position which "Can't Buy Me Love" constructs exists first as mechanical (i.e., on phonograph), electromagnetic (i.e., on LP or audio cassette) or digital (i.e., on compact disc) code. Thus, it is characterized by a potential for *never* being heard.

Indeed, "Can't Buy Me Love" can only exist *regardless* of any record reception in particular, which is to say, it can only exist for a series of *potential* transductions at no more specific a time and place than some point in the future wherever sound reproduction technology happens to be. As with any mix, "Can't Buy Me Love" is abstract enough to accommodate *any* record receiver or record reception and, thus, *no* record receiver nor any record reception — that is, no time, place or person — in particular.

Moreover, because a mix can only be made by transducing, it must always be a prototype or a multiple instance of a prototype. There can be no moment of a mix's realization in particular, then, nor any realization of a mix which is fundamentally unlike every other. What can be said by a mix is thus a multiple. Because each mix constitutes a listening position more so than a sonic phenomenon *per se*, and because all one ever hears by a music recording is a mix, record reception does not result in constitution of "a composite image of an apparently unitary musical performance," as Zak III and many other analysts of Recording Practice insist it does (Zak III 2001, 128). Rather, record reception must result in the construction of a past tense aural narrative of sonic phenomena already heard, that is, a retelling of how sound *was* heard.

Every music recording transduces in the past tense. It is, in fact, *impossible* that record receivers situate themselves in the context of sound production, that is, in sound's present tense, during and by their record receptions. They situate themselves, instead, in the context of what is currently called, for lack of a better term, "sound reproduction," which is, at one and the same time, necessarily the context of sound reproduction technology. Because people can only situate themselves in this context by exploiting sound reproduction technology for musical purposes, record receivers are always limited to the context of such technology.

Ultimately, then, a mix is the form that *anything* takes which is made by sound reproduction technology. It is simply *skewed* towards specifically "musical" purposes by Recording Practice.

Mixing: Sculpting "Storage-State Data."

Mixing is consciously making a mix. As noted, every music recording is mixed, even if not every record innovation involves a conscious mixing process. As long as record innovation happens, then, so, too, does mixing. Likewise, as long as there has been record reception, there has been transduction of mixes. Thus, mixing's historical development should follow that of Recording Practice itself.

Acoustic Mixing

The first kind of mixing in Recording Practice was so-called "acoustic mixing." This is mixing undertaken in the material presence of so-called "acoustic," or "mechanical," sound reproduction technologies (i.e., phonographs, graphophones, gramophones, etcetera). As a number of commentators have already noted, the

preeminence of "acoustic" mixing in Recording Practice runs from roughly 1889 to 1925, which is when newly introduced electromagnetic generations of sound reproduction technology — namely, electric microphones — allowed mixing a space in the record innovation process as a productive procedure in its own right.[32] In fact, as Albin J. Zak III explains, it was not until "multitrack recording gradually became standard" that "the distinction between recording and mixing as separate stages of a project grew" (Zak III 2001, 128).

"Acoustic" mixing took place during tracking, that is, while record innovators procured "storage-state" data to sculpt into a music recording. Record innovators mixed precisely as they procured "storage-state" data, then. At this point, given the technical limitations of so-called "acoustic" or "mechanical" sound reproduction technology, innovators had no choice but do this. They had to form often awkward arrangements around one or more recording bells, or "sound capture devices," to ensure that the code they made would transduce to record receivers from the aural perspective of a generally desirable mix.

Again, however, *whenever* people procure "storage-state" data, not only when they do so via "acoustic" or "mechanical" sound reproduction technology, they also "mix" it. This is simply especially clear when people use recording bells and other "mechanical" or "acoustic" sound reproduction technologies to procure data. The position of the so-called "sound capture devices" to the sounds they "capture"

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[32] For further commentary on microphone positioning, and the influence of the electric microphone on Recording Practice, see, for instance, Jacques Attali, *Noise: the Political Economy of Music*, trans. Brian Massumi and with an afterword by Susan McClary. (Minneapolis: University of Minnesota Press, 1989); and Michael Chanan, *Repeated Takes: A Short History of Recording And Its Effects on Music*. (New York: Verso, 1995).

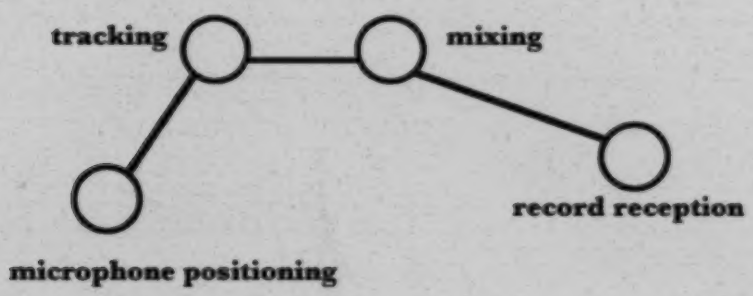
inevitably colours the code which is thereby acquired with spatial information such as, for instance, degrees of reverberation, echo and delay. Thus, it is not so much that "the many and varied approaches that recordists take to mixing reflect the same issues as other aspects of the record-making process — style of music, personal preferences, contingencies on the project, and so forth" (Zak III 2001, 143). Rather, "the many and varied approaches that recordists take to mixing" reflect, in the first instance, which kind(s) of sound reproduction technology they use to make a music recording.

Microphone Positioning

The present equivalent of acoustic mixing is microphone positioning. As noted, when a microphone transduces sonic phenomena as "storage-state" data, its position relative to the site of sound production during this process modifies the "storage-state" data which is thereby made with sonic markers of distance such as, for instance, degrees of reverberation or the conspicuous absence of reverberation, echo and delay. This is *always* the case.

It is not surprising, then, that acoustic mixing has developed into a series of conventions and rules concerning where microphones are positioned to the site of sound production during tracking. Indeed, in this form, acoustic mixing currently precedes what's now called "the mixing process" during record innovation; it figures in the record innovation process during procurement of "storage-state" data (i.e., during tracking), and is mostly undertaken by record innovators to colour and shape that data rather than to consciously spatialize it.

Figure 14. Position of mixing relative to microphone positioning in current practices of record innovation.



Microphone positioning is now, in fact, a key activity in record innovation. As such, certain conventions or rules for "good" microphone positioning have obtained. As Zak III explains:

> The subtle art of microphone placement is nearly as important a factor in the rendering of the sonic image as microphone design, and recordists continually refine and expand their technique through experimentation. The placement determines the degree and type of coloration and defines the relationship between source sound and room sound. Considerations include not only the microphone's orientation to the sound source — as defined by distance and angle — and the acoustic characteristics of the room, but also the microphone's sound-gathering properties (Zak III 2001, 110).

Obviously, which kind of microphone(s) record innovators use during tracking will also shape the data they procure. As Zak III notes, "the subtle art of microphone placement is *nearly as important* a factor in the rendering of [a] sonic image as microphone

design" (Zak III 2001, 110). Indeed, microphones ultimately "hear" sonic phenomena in accordance with the polar pattern of their transducing mechanisms (i.e., their "diaphragms") which, in turn, determine their response to the sonic phenomena that reaches their diaphragms from different directions. This operational and practical fact of microphone technology limits — and, in so doing, *determines* — which kind(s) of "spatial information" can, in the first instance, be added to "storage-state" data during tracking.

The three basic microphone polarities are: "unidirectional" (including cardioid, supercardioid and hypercardioid), "omnidirectional" and "bidirectional." Cardioid unidirectional microphones, for instance, "hear" sonic phenomena which is directly in front of the diaphragm and slightly on either side, "thinning" sonic phenomena which reaches it from locations outside this field. Omnidirectional microphones "hear" sonic phenomena located anywhere around them, while bidirectional microphones "hear" sonic phenomena which reaches them from directly in front or behind.

"A microphone's polar pattern, frequency response characteristics, and placement, are all factors in its timbral effect," according to Zak III (Zak III 2001, 143). A good illustration of this has to do with unidirectional and bidirectional microphones. Both microphones, when situated in close proximity to the sound source(s) during transduction, amplify the bass frequencies they "hear." This, according to Zak III, can "create a muffled boominess that requires filtering" or "a warm intimacy to a vocal performance," depending upon how the microphones are spaced. (Such "use," of course, models a creative deployment — and, thereby, acknowledgment — of "technological determinism" in the record innovation process, as does microphone positioning in general and its "acoustic" or "mechanical" cousin: acoustic mixing.)

Multitrack Mixing

By now, mixing proceeds by the so-called "Multitrack Paradigm." This is a manner of considering music innovation in terms of "parallel parts or tracks which may then be mixed or re-recorded independently" (White 1997, 310-311). In short, the "Multitrack Paradigm" is a "way of considering," specifically, music innovation in terms of what multitrack mixing consoles can do. As Zak III explains, "a track's final form is arrived at through a series of evolutionary steps.... to mixing, which finishes the process," and, "thus, the work's specificity is developed by degrees" (Zak III 2001, 128). With the emergence of the "Multitrack Paradigm," and, thus, of those generations of sound reproduction technology upon which that paradigm is predicated, "two things happened," according to Brian Eno:

> You got an additive approach to recording, the idea that composition is the process of adding more.... [and] in-studio composition, where you no longer come to the studio with a conception of the finished piece. Instead, you come with actually a rather bare skeleton of the piece, or perhaps with nothing at all.... You begin to think in terms of putting something on, putting something else on, trying this on top of it, and so on, then taking some of the original things off, or taking a mixture of things off, and seeing what you're left with — actually constructing a piece in the studio (Eno 1983, 57).

However, multitrack mixing is impossible without "storage-state" data to manipulate. Multitrack mixing *is*, then, manipulating "storage-state" data, just as it is a manner of considering the manipulation of data a "musical" act. Multitrack mixing simply *must* come after procurement of "storage-state" data, then, during the record innovation process. Thus, what is currently called "mixing" — what is more accurately called "multitrack mixing" — constitutes the penultimate phase of the record innovation process, coming after tracking and before mastering.

As noted, however, the multitrack mixing "phase" of record innovation is mostly undertaken by record innovators to approximate the experience of *hearing* a musical performance from an aural perspective which is spatially fixed in relation to the site of sound production. It is, in fact, generally deployed by record innovators to construct an aural perspective to sonic phenomenon which is analogous to that which obtains between performer and listener in the setting of a "Live" or "Concert" exchange. Ultimately, then, multitrack mixing must be no more, no less than an interpolation of certain "live" reception paradigms into Recording Practice as a production value.

Paul White's advice to beginning record innovators perhaps best demonstrates the degree to which this "live" reception paradigm has been interpolated into Recording Practice. White suggests the following criteria for making a mix, all of which combine to construe a spatial prioritization of sound which resembles that which obtains in a "live" setting:

> Situate bass instruments and bass drums to the centre of the mix. Snare drums tend also to work best when panned near the centre but the toms and overhead mics may be spread (not too widely), from left to right. Keep the lead vocals close to the centre of the mix as they are the focus of the performance, but experiment with positioning backing vocals on the side. When you pan an instrument away from the centre of the mix, don't always feel you have to go hard left or right. Try to paint a picture with your sounds spreading across the stereo stage, with key sounds nearest the centre, supporting sounds panned to either side, and artificial reverberation panned the widest.... Use your discretion when panning the outputs from stereo effects units such as delays and chorus units. Consider panning them over just half of the stereo soundstage — between dead centre and hard left, for example (White 1997, 18).

Indeed, multitrack mixing is technologically determined, in that it is enabled, *in toto*, by the capacities of multitrack mixers. Multitrack mixing simply cannot be done without multitrack mixers. In which case, multitrack mixing is exploiting any "device for combining two or more audio signals," as Paul White argues (White 1997, 310). Furthermore, as White continues:

> A studio mixer must serve two functions; during recording [read: procurement of 'code] it facilitates signals from microphones and instruments to be routed to specific tracks on a multitrack recorder and along the way, it allows you to set the recording levels and EQ. Once you have recorded your first lot of tracks, these need to be monitored somehow so you can play along with what you've already recorded. Being able to hear what you've already recorded is the very essence of multitrack as it allows your recording to be built up using layers of overdubs (White 1997, 18).

Mixers: Operational and Practical Limitations.

The number of signals which a mixing console combines is generally even. Most current generations combine 2, 4, 8, 16 or 32 signals, though digital mixers can combine a theoretically unlimited number.

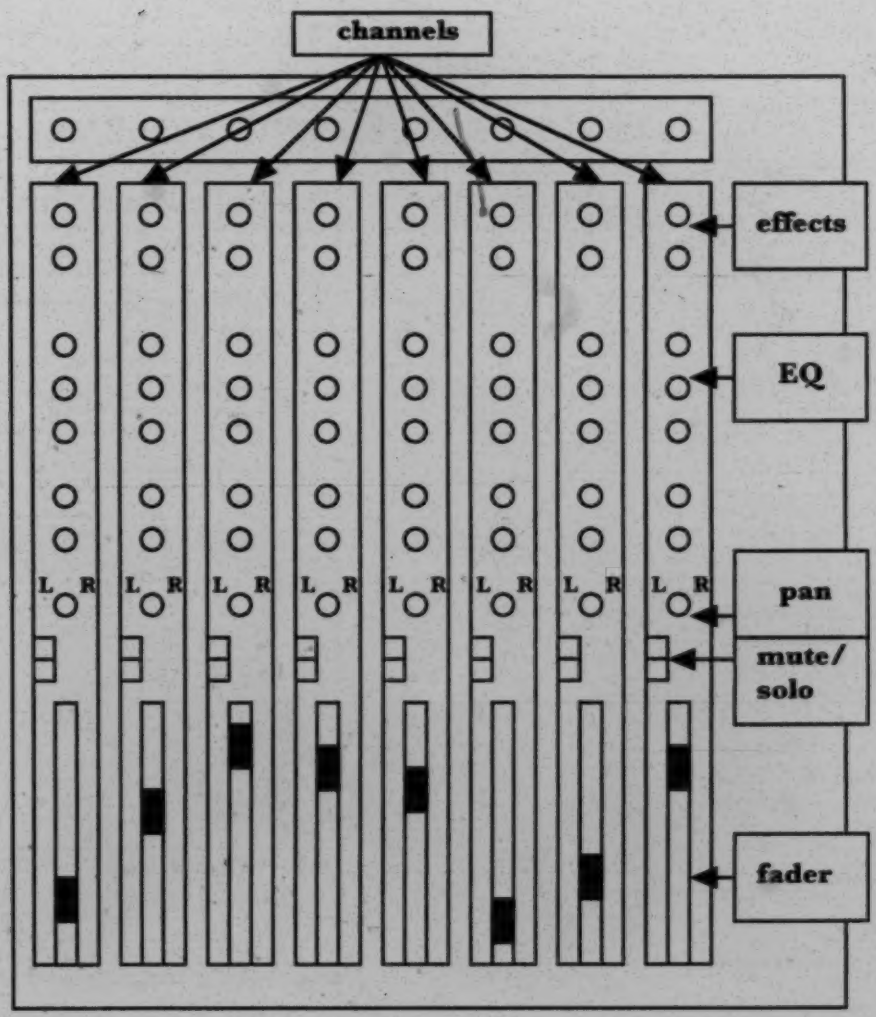
All the "storage-state" data that comprises a finished music recording, which is mixed according to the multitrack paradigm, passes through however many signals as a multitrack mixing console combines. Thereby, each unit of this code is rendered vulnerable to manipulation by each capacity of a multitrack mixer, of which there are seven that remain, to this day, integral to the mixing "phase": (i) Channel, (ii) Fade, (iii) Pan, (iv) EQ, (v) Mute/Solo, (vi) Effect and (vii) Bussing.

Channel. A multitrack mixer is divided into as many "discrete" channels as signals it is capable of combining. Thus, on a 4-track mixer — which is any mixer capable of combining 4 discreet units of code as 4 discrete "signals" — there will be 4 discrete channels. Each of these channels corresponds to an unit or units of code. They render each unit of code as passes through them amenable to Fading, Panning, Equalization, Muting or Soloing, Effecting and Bussing.

Fade. Fade is the volume at which an unit of code transduces during and by record reception, or the volume of an unit of code during and by record reception relative to all the other units with which it is stored. Fade is determined by exploiting faders on a mixer.

A *fader* is a sliding potentiometer on a mixer which allows record innovators to determine the dynamic level of a unit or units of code which are inputted into one of the mixer's channels. In layman's terms, a fader is a track's "volume." There is also a fader on every mixer which allows record innovators to determine a dynamic range for all the units of code which pass through.

Figure 15. Typical mixing board, schematized according to the layout for Mackie Onyx 1620 Firewire Enhanced Analog Mixer, with "core" functions noted.



Pan. The *pan* function of a mixer controls the horizontal situation of code when it is transduced. Panning to the left is situating code horizontally left. Panning to the right is the opposite. Wherever a track pans is determined by exploiting pan pots on a mixer.

A *pan pot* is a knob which typically appears on each channel of a mixer. It may be twisted to the left or right. In doing this, record innovators move units of code to horizontal locations within the stereo spectrum corresponding to where the pan pot is twisted. If a pan pot is twisted furthest to the left and all the other pan pots are twisted hard right, for example, the former unit of code is fixed furthest horizontally to the left of all the units of code with which it is stored on a music recording, which all sound to the right, during and by record reception.

EQ. EQ, or the "equalization" function of a multitrack mixing console, determines the frequency range according to which units of code are fixed to transduce. One "equalizes" an unit of code by foregrounding (i.e., "boosting") or lessening (i.e., "cutting") certain frequencies.

Use of the *EQ pots* on a mixer allows record innovators to determine which frequencies on a track(s) will be foregrounded or lessened during record reception.

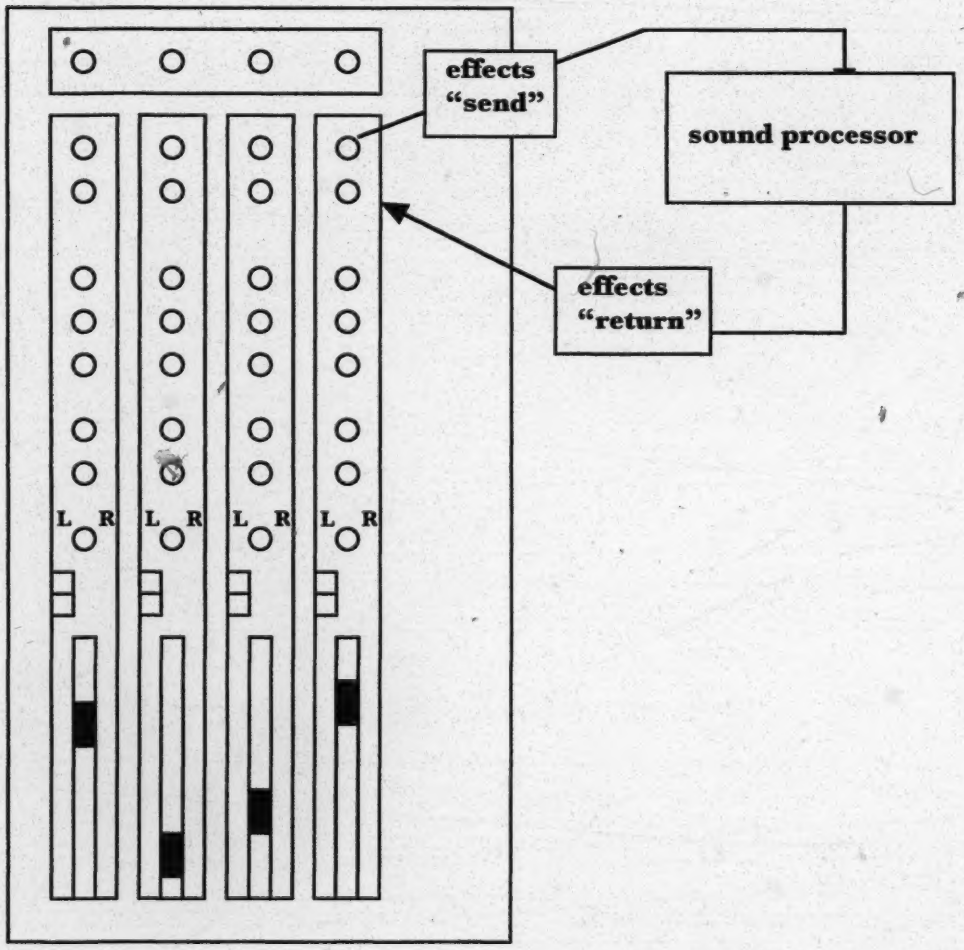
Mute/Solo. Mute and Solo are two different functions of a mixer. They enable record innovators to determine whether an unit of code will sound alone (i.e., "solo"), if at all (i.e., "mute").

If the *mute button* is depressed, a signal is "cut" from or barred access to whichever "storage" medium record innovators use. Thereby, it is barred from ever being heard during record reception. If the *solo button* is depressed, on the other hand, all other signals are barred access; the "soloed" track(s) sounds alone. Generally, however, these functions are useful for isolating or cutting a track or tracks to check their balance or EQ *during* the multitrack mixing process.

Effect. The effect function of a mixer determines the degree to which sound processing will permeate one or all units of code which pass through a mixer. By sending (i.e.,"bussing") a signal through an output socket to an effects processor — "a device for treating an audio signal in order to change it in some creative way," as Paul White explains — and then back from the processor to the mixer through an effects "return," the sent (i.e., "bussed") and "effected" (i.e., "returned") units of code are fed back into the multitrack mixing console through either the same or discreet channels, and then passed through to the "storage" medium (White 1997, 297). Sound processes most often used to alter signals include, for example: (i) *chorus*, which doubles a signal and adds delay and pitch modulations to it; (ii) *digital delay*, which feeds an unit of code into a digital processor that creates echo effects; (iii) *flange*, which modulates and adds delay to an unit of code; and (iv) *phase*, which combines an unit of code with a phase-shifted version of itself.

The *effect pot* enables record innovators to determine a dynamic relation between "bussed" and "returned" units of "storage-state" data when they are fed through the same channel on a multitrack mixing console. In exploiting the effect pot, record innovators determine to what degree a unit of code is permeated by its processed double on the final mix.

Figure 16. Effects "sending" and "returning" schematized according to typical channel on a mixer board, with effects pots isolated.



All told, the Fade, Pan, EQ, Mute/Solo, Effect and Bussing functions of a multitrack mixing console enable record innovators to determine a past tense aural narrative of sonic phenomena as the "content" of a music recording (i.e., as a particular sculpture of mechanical, electric, electromagnetic or digital code). Every mix, then, is constructed by record innovators in the future imperfect tense (i.e., as "could be heard as"), through proper consumption of a multitrack mixer, microphones and/or "acoustic" or "mechanical" sound reproduction technologies. However, such data only transduces for record receivers in the past tense (i.e., as "was heard as"), and, again, only through proper consumption of sound reproduction technology. As such, mixing in all its forms — which is to say, Recording Practice in its entirety — excises sound's present tense (i.e., sound production) from musical communications.

Mix Compass.

Western notation cannot objectify a mix for purposes of analyzing it. Notation is, after all, a prescriptive technology which was made for the express purpose of reasoning and objectifying sonic phenomena as such, made under the auspices of sound production.

A mix is three dimensional. It determines an aural perspective to sound, by which sound is conveyed to record receivers during and by record receptions, not a linear sequence of sound events *per se*. Obviously, then, Western notation explains nothing of how sonic phenomena is in the first instance encoded in Recording Practice (i.e., as mechanical, electric, electromagnetic or digital code) nor how that code is decoded as sound by record receivers (i.e., through transduction of record "contents"). Indeed, Western notation doesn't claim to do this.

In light of this, I have devised my own means of representing, in visual terms, the aural perspective of a mix. I call this tool a "mix compass," because it offers directional information as to where a mix locates sonic phenomena in relation to itself. The "mix compass" is thus meant to aid analysts in clarifying mixes for purposes of analyzing them. Beyond this, the "mix compass" is also intended to clarify that what one hears by music recordings are past tense aural narratives of sonic phenomena already "heard" more so than genuine sonic phenomena *per se*, just as one sees a past tense (audio-)visual narrative of dramatic events already "seen" whenever they watch a movie rather than dramatic events *per se*.

There are six components of a mix compass. These are (i) The Auditory Horizon, (ii) The Horizontal Plane (Combined Horizontal/Vertical Span), (iii) The Horizontal Span, (iv) The Proximity Plane, (v) The Vertical Plane and (vi) The Vertical Span. Each mix is comprised of these six components. To explain these components, I will use the mix for Pink Floyd's "Speak To Me" (1973), which strikes me as perfectly suited to this task.

"Speak To Me": Sounds

Composed by drummer Nick Mason, "Speak To Me" constitutes roughly the first minute of a key artifact of Recording Practice, Pink Floyd's *Dark Side of the Moon* (Capital: 1973) LP (which, at the time of writing, is the fourth best selling and, at 723 weeks on the Billboard Top 200, the second longest charting music recording in the history of Popular Music's convergence with Recording Practice). As the album's opening track, "Speak To Me" is divisible into three sections. Section One runs to thirty-eight seconds. Section Two runs from thirty-eight seconds to one minute and eleven seconds. Section Three comprises the last five seconds of "Speak To Me."

Table 1. "Speak To Me" divided into three sections, with significant sound events noted (my transcription).

Section One (0:00-0:38)	**Section Two (0:38-1:11)**	**Section Three (1:11-1:1**
0:00 silence	0:38 *"I've been mad for..."*	0:55 pneumatic drill/
0:12 heartbeat	0:40 cash register	frequency drone
0:31 stopwatches	0:47 *"I've always been..."*	1:11 melodic screams/
0:36 grandfather clock	0:51 laughter	cymbal roll
		1:16 edit into "Breathe"

"Speak To Me" begins with silence (eleven seconds on CD, more or less eleven seconds on vinyl LP or audio cassette). A heartbeat then fades to audibility. After another twenty seconds, the ticking hands of stopwatches fade in. These are followed shortly by the pendulum swings of a grandfather clock. Band roadie Pete Watts then confesses, "*I've been mad for fucking years, absolutely years man, over the edge working with bands.*"

In the meantime, a looped cash register opens and slams shut at an obsessive rate across the stereo spectrum. Jerry Driscoll, the doorman at Abbey Road Studios where Pink Floyd recorded *Dark Side of the Moon*, then says, "*I've always been mad, I know I've been mad, like most are.... Very hard to explain why you're mad, even if you're not mad*," and a loop of nervous, even deranged, laughter becomes audible. Something like a pneumatic drill fades in, coupled with an electronic frequency drone. These two tracks are then pumped to an increasingly higher volume such that they overtake all but Clare Danes's melodic screams and a cymbal roll, both of which sound for the remaining five seconds over and above the rest of "Speak To Me."

After 1 minute and 16 seconds, "Speak To Me" then transitions seamlessly into "Breathe" (1973), which is the second track on *Dark Side of the Moon*.

"Speak To Me": Interpretations

As a collection of mostly "found sounds," "Speak To Me" is most often explained, at least in published accounts, as the first scene of a narrative which all told comprises *Dark Side of the Moon*.[33] The remaining tracks on *Dark Side of the Moon* are thought to recount, via a series of "flashbacks," the protagonist's encounters with what Roger Waters called "anti-life forces" (in order, authority, paranoia, time, money and war), each of which is alleged throughout the album to exact an universally deadening toll upon the psyche.

In this respect, and given a familiarity with *Dark Side of the Moon* as a whole, "Speak To Me" constitutes a sonic analogy for the album's protagonist *in medias mental collapse*, as it were. The sounds comprising the track amble randomly about the stereo spectrum to analogize the protagonist's sudden incapacity to reason or situate one sound in relation to another according to their inherent symbolic connotations. The remainder of the tracks on the album are thought to elucidate this collapse and, in so doing, to polemicize the capitalist mode of production as a highjacker of desire and, eventually, of sanity. During "Money" (1973), for instance, the fifth track on *Dark Side of the Moon*, the album's protagonist emerges as something like Herbert Marcuse's "One-Dimensional Man" in the extreme. On the album's penultimate track, "The Great Gig in the Sky" (1973), the protagonist contemplates suicide, realizing that he's achieved nothing but great wealth (a cause for celebration, to my mind). By the time of "The Lunatic" (1973), the concluding track on *Dark Side of the Moon*, the protagonist has lost his mind completely.

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[33] See, for example, Nicholas Schaffner, *Saucerful of Secrets: the Pink Floyd Odyssey*. (New York: Delta Trade Paperbacks, 1991):174-177.

Regardless of how one interprets the track — I've always heard a childbirth from the child's perspective — what one hears by "Speak To Me" is a mixing performance. Indeed, fundamentally, "Speak To Me" is *about* mixing and, thus, musical interpellation of sound reproduction technology (which is to say, it is about Recording Practice). The "found sounds" which mostly comprise "Speak To Me" are only available to Pink Floyd through practices and technologies of sound reproduction. The manner by which Mason arranges these "found sounds," and the potential for a listener to hear them in that specific arrangement again, are likewise only achievable thereby.

Above all, however, the listening position which the mix for "Speak To Me" constructs — which is ultimately all that its receivers hear — models a "way of hearing" which is simply too spatially mobile to ramify as anything but a "way of hearing" which is made for and by sound reproduction technology. Throughout "Speak To Me," all but Clare Danes's melodic "screams," for instance, are constantly faded to a higher volume such that they continually approach record receivers as the mix "hears" them approach, which creates a spatial metaphor for proximity and encroachment. The tracks which comprise "Speak To Me" also oscillate variously from left to right positions along the stereo spectrum, and vice versa. These sounds, and their arrangements in the mix, are simply impossible to reproduce in a "live" context without recourse to sound reproduction technology.

"Speak To Me": Mix Compass

Auditory Horizon. The Auditory Horizon of "Speak To Me" is established at eleven seconds into the track, when the heartbeat fades to audibility. Behind that horizon is silence. Dynamic mixing techniques such as fading thus establish and, crucially, in the first instance *mean* in relation to an auditory horizon, which constitutes the total horizontal and vertical span, or "earshot"/geographic-reach, of a mix.

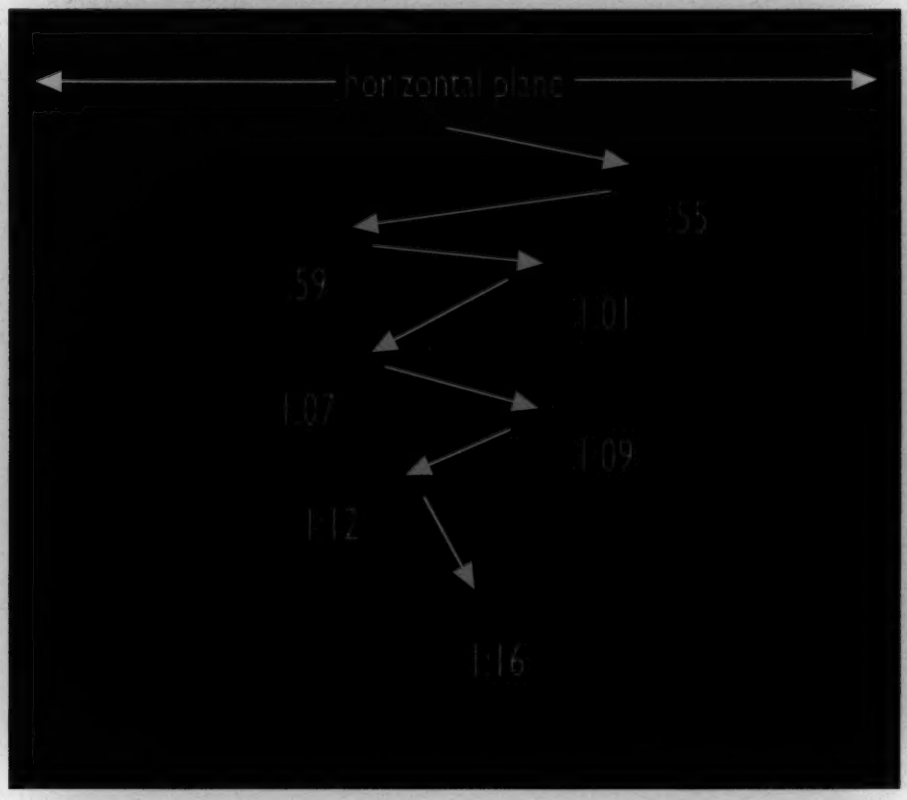
This earshot is specified whenever units of code are mixed to audibility during record reception. If a track fades in, then, as with the heartbeat in "Speak To Me," for instance, the track begins its trek towards the auditory horizon from behind it. The amount of silence before the horizon is breached represents a certain distance towards the aural perspective of a mix which a recorded performance must travel to be heard. Conversely, if a track fades out, as with, for example, the heartbeat heard during "The Dark Side of the Moon," which is the final track on *Dark Side of the Moon*, the track ends its trek past the auditory horizon, beyond the mix's earshot.

The amount of time before the auditory horizon is breached represents a certain distance away from the mix that sonic phenomena must travel to elude a mix's earshot.

Horizontal Plane. "Horizontal Plane" refers to the horizontal position of sonic phenomena within a mix. This plane is made by manipulating pan pots on a multitrack mixing console when code passes through it. A track's position on the Horizontal Plane describes what degree left or right of center a track is assigned to pan. For example, what I call the"pneumatic drill" and "frequency

drone," which sound at fifty-five seconds into "Speak To Me," are panned variously throughout their brief twenty-one second existence. They oscillate between, rather than leap from, left to right positions along the Horizontal Plane, and vice versa. In so doing, they establish the Horizontal Plane of "Speak To Me" and, in so doing, demonstrate that the mix for "Speak To Me" hears horizontally in the first instance, and how it does so.

Figure 17. Pneumatic drill track as it moves along the Horizontal Plane in Pink Floyd's "Speak To Me" (my transcription).



Horizontal Span. Obviously, the Horizontal Span of a mix compass describes the total width of a mix's horizontal plane (i.e., how "big" it is). The Horizontal Span of a mix is thus its total horizontal reach, its entire earshot in horizontal terms. A Horizontal Span is made by panning units of code left and right of center, to construct distance between these units when they are transduced during and by record reception.

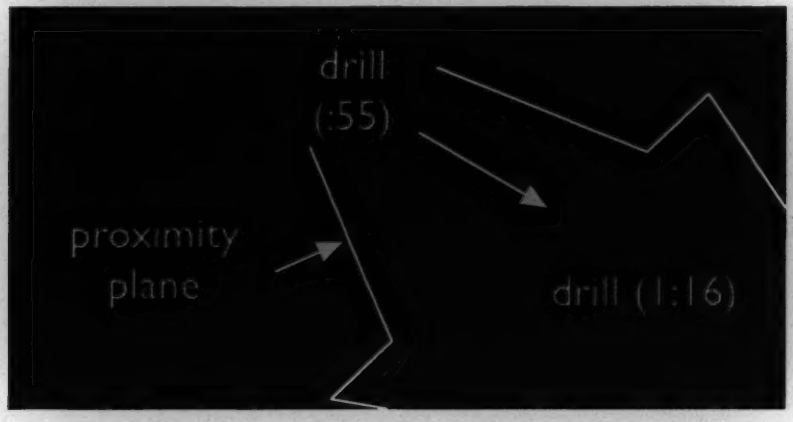
In "Speak To Me," the unit of code which Mason pans furthest to the right along the Horizontal Plane is the loop of ticking clocks which becomes audible thirty-one seconds into the track. Sixteen seconds later, a male voice confesses that he's "*always been mad*" at the furthest distance left along the Horizontal Plane of any other tracks on "Speak To Me." These two units of "storage-state" data, when transduced, combine to create the Horizontal Span of the mix for "Speak To Me."

Figure 18. Horizontal Span in Pink Floyd's "Speak To Me" (1973), as constituted by loop of ticking clocks (0:31) and a male confession of madness (0:47).

Proximity Plane. Perhaps the most significant dimension of a mix is its Proximity Plane, which describes the proximity of sound in relation to the distance between the listening position that the mix constructs and the Auditory Horizon. Proximity is made by fading the dynamic level of a unit or units of code higher or lower. That is, one *makes* proximity each time they move a fader (i.e., potentiometer) during mixing. A louder volume moves a sound "closer" while a quieter volume moves it "away." Thus, the Proximity Plane represents the capacity of a mix to hear in depth, with the Auditory Horizon as its limit.

In "Speak To Me," as what I call "the pneumatic drill" pans along the Horizontal Plane, it is also faded to a higher volume and, thereby, moved closer to the listening position of the mix along the Proximity Plane. By fading the track to an increasingly higher volume throughout "Speak To Me," Mason thereby creates the illusion that the track is ever increasing in "proximity" and, thus, ever encroaching upon the listener.

Figure 19. "Pneumatic drill" track faded "closer" along the Proximity Plane in "Speak To Me" (my transcription).



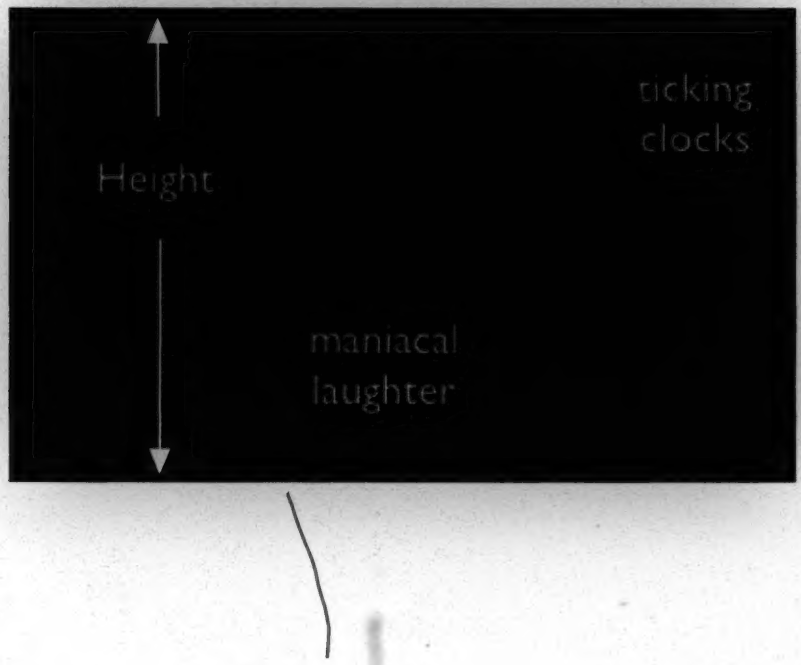
Vertical Plane/Vertical Span. Alongside an Auditory Horizon, an Horizontal Plane, Horizontal Span and a Proximity Plane, each mix also has a Vertical Plane. As the Horizontal Plane and the Horizontal Span together describe a mix's capacity to hear horizontally, the Vertical Plane describes a mix's capacity to hear vertically. As such, the total area of the Vertical Plane constitutes the Vertical Span of a mix, its entire capacity to hear vertically.

Vertical positions in a mix are given to an unit or units of "storage-state" data by determining for them a relatively stable position along the Horizontal Plane and the Proximity Planes. That is, the Vertical Plane and the Vertical Span are achieved or "made" when record innovators exploit faders and pan pots on a multitrack mixing console in conjunction. The resulting lack of Horizontal Plane and Proximity Plane motion causes an unit(s) of code to assume a particular vertical location on the Vertical Plane in relation to the other units with which it transduces as sonic phenomenon. The combined vertical locations of all the units of code which comprise a music recording demarcate a mix's capacity to hear vertically, which is to say, its Vertical Span.

For example, the loop of ticking clocks which is heard by the mix of "Speak To Me" to sound at a hard right position along the Horizontal Plane remains at a relatively static position along the Proximity Plane in relation to the "pneumatic drill," which approaches or increases in "proximity" all the while it sounds. Thereby, the loop sounds "over and above" everything else, which is to say, at the "highest" position along the Vertical Plane of the mix for "Speak To Me." Conversely, "lowest" of all tracks which the mix for "Speak To Me" "hears" is the maniacal laughter; the laughter thus occupies the

"lowest" position on the Vertical Plane of all the tracks on "Speak To Me." Together, the loop of ticking clocks and the maniacal laughter constitute the Vertical Span of the mix for "Speak To Me."

Figure 20. "Height" or Vertical Plane and Vertical Span of "Speak To Me," as instantiated by loop of ticking clocks and maniacal laughter (my transcription).



Combined, the Auditory Horizon, the Horizontal Plane, the Horizontal Span, the Proximity Plane, the Vertical Plane and the Vertical Span of a mix *constitute* an aural perspective to sonic phenomena, which is to say, a listening position that is made by sonic phenomena during and by record reception, but which is not comprised of genuine sonic phenomena as such (i.e., sound occupying one single time and place with a clear

source and "mortality" or "decay"). These components of the mix compass approximate what the code which a music recording stores will sound like during and by record reception. Ultimately, then, a mix compass visually approximates a manner of "hearing" which is instantiated whenever record innovators make musical use of the Fade, Pan, EQ, Mute/Solo, Effect and Bussing functions of a multitrack mixing console, and what results when or if it is given a record reception.

Again, though, *every* mix constitutes a manner of "hearing" and, thus, may be considered in terms of a mix compass, even if its manufacture does not involve "multitrack mixing." Indeed, the Auditory Horizon, the Horizontal Plane, the Horizontal Span, the Proximity Plane, the Vertical Plane and the Vertical Span of the mix compass describe what's "heard" *whenever* sonic phenomena is transduced as "storage-state" data, and vice versa, that is, *whenever* musical "information" is constituted under the auspices of sound reproduction.

SECTION TWO

Sound Fidelity: Fact and Fiction.

For all intents and purposes, record innovation ends when a mix is determined as a particular configuration of code. When it is subjected to record receptions, each mix signifies a certain relation between what it "hears" and whom it "hears" for. That is, by the sounds it makes when it is given a transduction, each mix posits a causal connection between the putative "original" speech act(s) it "hears" in a particular manner, and those for whom it does so. By its mix, then, every music recording

ultimately signifies the conspicuous presence or absence of so-called "sound fidelity" — successful or failed "extension" or "prostheticizing" of some musical communication(s) to one or more receivers by way of sound reproduction technology.

That being said, once sonic phenomena is transduced and mixed, it cannot exist as sonic phenomena except by record reception. It is, in fact, only record receivers who *realize* what a mix represents (i.e., sound in particular). They make happen the sonic phenomenon in particular which record innovators figure as code and, in so doing, enact Recording Practice rather than simply "extend" "live" musical exchange. Record receivers do not simply receive an utterance which is preserved by sound reproduction technology, then, but, rather, *make* an utterance from silent code stored on certain generations of sound reproduction technology (i.e., music recordings). In which case, "sound fidelity" cannot exist but as a fiction made by record reception. It may only be signified, never achieved.

Such a view could result in a rather solipsistic assertion, however; that is, that record reception is unfettered, having little if anything to do with record innovation in terms of stricture. In which case, "sound fidelity" could be made by anyone from any music recording at any time, depending solely upon who listens. But sound fidelity is in the first instance made by configuring "storage-state" data such that, when it is subjected to record receptions, the sonic phenomenon which results resonates with certain culturally situated ideas about the relation of sound to a sound source and, thus, the relation of the process of sound reproduction technology to originality. As Jonathan Sterne explains,

> sound fidelity is as much a product of and a player in cultural history as are the machines that it purports to describe. The possibility that a reproduced sound could be faithful requires that listeners and performers have faith in the

> [N]etwork.... Sound fidelity [is], ultimately, about faith and investment in these configurations of practices, people, and technologies. It posits the technology to reproduce sound as a vanishing mediator — a means that.... obliterate[s] itself in achieving its end (Sterne 2003a, 283).

Of course, "the technology to reproduce sound" cannot "obliterate itself in achieving its end," as Sterne clarifies later; the "end" is only achievable through sound reproduction technology. If the latter is "obliterated," then, so, too, must the "end" in whose service it is put also be obliterated. Thus, in the final analysis, "sound fidelity" must be a fiction which record innovators and record receivers *cooperatively* engage in Recording Practice to construct, but which can only be fully realized — which can only ever exist materially (i.e., as sound configured somehow) — during and by record reception.

Nevertheless, sound fidelity is an unquestionable *fact* of Recording Practice for many. It is true for many listeners that, for example, *Bob Dylan: Live 1966* (Columbia/Legacy C2K65759/CK65760, 1998) documents Bob Dylan's infamous appearance at London's Royal Albert Hall with The Band in 1966, though many listeners are also aware that this music recordings was actually made at another venue and time than the title suggests.[34] However, even if record receivers know that *Bob Dylan: Live 1966* was made at some other place and time than its title claims, the notion that it documents some "live" performance by Bob Dylan and The Band with more or less accuracy is nonetheless agreed to. In fact, the very notion of a "live" music recording demonstrates that sound fidelity exists as an unquestionable fact for many

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[34] Though it remains unclear where, exactly, *Bob Dylan: Live 1966* was recorded, it is clear that it was not at London's Royal Albert Hall, as Columbia Records first claimed it was.

record innovators and record receivers; that, for many, "live" is something which is *achieved* by Recording Practice rather than only signified.

Moreover, as a fact, sound fidelity posits music recordings as "documents," "copies" or "extensions" of putative "original" speech acts and, thereby, as objects imbued with more or less documentary authority. Even the fact of sound fidelity works according to certain significations, then. It signifies the existence of a "direct" or 1:1 relation between what a certain music recording stores and certain "original" speech acts which it supposedly documents in so doing, for example. At the same time, it signifies the conspicuous absence of those acts in their materiality and, in so doing, that listeners are and always will be absent from the moment of sound production which the "live" music recording they transduce purports to preserve. In the final analysis, the fact of sound fidelity must thus constitute what Jonathan Sterne deems "a philosophy of mediation" (Sterne 2003a, 217). That is, it must be an understanding of sound reproduction technology which takes it as a means of manufacturing "copies" of an "original" rather than multiple instances of a prototype.

Sound Fidelity: Realist vs. Romantic.

Still, as a fact or as a fiction, sound fidelity exerts a tremendous influence over record innovation and record reception. It is, and has been, inextricably bound with notions of "authenticity" which are paramount within almost every genre of Recording Practice. In a 1936 issue of *Gramophone*, for instance, alternating articles concerning sound fidelity and Recording Practice of Western Art Music — so-called "classical" music — outlined both interpretive poles of an influential polemic which emerged then concerning how Recording Practice should proceed *given* sound fidelity. As Cedric Wallis

notes, "the Realists stood out strongly for as accurate a reproduction as possible of the actual sounds recorded, but the Romantics held that a certain sacrifice of accuracy was permissible, nay, even desirable, if it induced a quality more pleasing to the ear" (Wallis 1984, 385).

This polemic continues on in commentary about Recording Practice to this day. The critical reaction to Miles Davis's protean "electric period" tracks, "Shhh/Peaceful" (1969) and "In A Silent Way/It's About That Time" (1969), for example, is a case in point. Though *In A Silent Way* (Columbia VCK40508, 1969), which the latter tracks together comprise, would begin to polarize Davis's fan base into "pre-electric" and "electric" period aficionados, mirroring the polarization which marked Bob Dylan's fan base only four years prior, it would not be until *Bitches Brew* (Columbia C2K 65774/CK 65775, 1970) that Miles's decision to use amplification took center stage in the debate.

In 1969, the issue for fans of Miles Davis was his Recording Practice, the trumpeter's refusal to replicate what he and his band performed "live" on vinyl LP irking and inspiring listeners in turn. Larry Kant, for example, who was at the time of the album's release the resident critic for *Down Beat Magazine*, gave *In A Silent Way* only two stars, citing as his rationale "an inability to make the connection between" what he had witnessed "the band do live and what the album was" (Belden 2001, 91).. Likewise, in the *New York Times*, critic Martin Williams declined "to comment on Columbia's release, *In A Silent Way*," altogether, except to warn readers that, "through no fault of the musicians involved, the editing, annotating, and packaging are horrendous. Through faulty tape splicing, a portion of the music even gets inadvertently repeated at one point!" (in Belden 2001, 91).

While, as Bob Belden notes, Williams and many likeminded critics clearly "didn't get it" — that is, while it was clearly *inconceivable* to Williams and many of his

likeminded contemporaries that Davis might have intended for the return of "In A Silent Way" after " It's About That Time" to conclude "In A Silent Way/It's About That Time" — what's crucial here is that not just Kant and Williams but critics of the album in general considered it a *failure* of *In A Silent Way* that no concession was made to Davis's "live" performance practice by it (Belden 2001, 91). This constitutes articulation of "Realist" leanings if ever there was one. Sound reproduction technology is to be used only as a scribe, critics protested, never to offer comment of its own.

Indeed, critics rather explicitly claimed, any other use of sound reproduction technology but to convey "live" performance practice to record receivers constitutes a compromise of performers's aesthetic duties. In fact, critics of Davis's music recordings from this time openly agreed that explicit use of sound reproduction technology to make a music recording (use of technological "gadgetry" and "trickery," as many described it) is a morally suspect, thoroughly *unmusical* practice. For many, *In A Silent Way* failed specifically because it was guilty of such "gadgetry."

Conversely, "Romantic" notions of Recording Practice posit no genetic relation between the concert-hall and the sound reproduction medium. For "Romantics," music recordings are expressive *per se*, neither "extending" nor failing to "extend" so-called "live" musical practice but, rather, enacting Recording Practice. In the liner notes for *Solitude (Experiencing Nature With Music): Beethoven Forever By the Sea* (1997), for example, Dan Gibson claims that certain sounds which simply could not be replicated in a concert setting without using sound reproduction technology (i.e., sounds of the ocean tide, Chick-will's-widow and Screech Owl bird calls, etc.) constitute acceptable augmentations of "probably the most loved of all Beethoven's piano works," the first movement of *The Moonlight Sonata* (Gibson 1997, 1).

To Gibson's mind, in fact, the notion that his music recording should somehow constitute a document of some original speech act(s) simply does not apply — *Beethoven Forever By The Sea* is, itself, an original speech act, and it should be treated and used as such by its record receivers. In Gibson's words, "as with all *Solitudes* albums, it is recommended that the program be played in a quiet contemplative atmosphere with the volume and tone controls set at a level in keeping with the natural ambiance" (Gibson 1997, 1). Sound reproduction technology enables musical communications which are unique to it, in other words. Thus, such technology, of which music recordings are but an instance, should be used *however* record innovators and record receivers see fit.

Sound Fidelity: Concept.

A few generalizations about the concept of "sound fidelity" at large, which is the broader concept that both the fact and fiction of "sound fidelity" together comprise, are now possible. For the most part, the fact of sound fidelity absents actors of supposedly "original" speech acts from their alleged documents (i.e., more or less "live" music recordings). It thereby claims record reception as a referencing of original speech acts from which record receivers are forever absented *by their musical labour*, not by any deficiency in the music recordings they work with.

Thus, the fact of "sound fidelity" not only posits sound reproduction technology as a "vanishing" mediator between original speech acts and their putative documents, as Sterne claims it does. More importantly, it also ensures that a relation between "original" speech act and "copy" remains always insurmountable and, therefore, inevitable. In doing this, it privileges "live" performance practice as more dignified

than Recording Practice and, as such, makes of it an ideal towards which the latter must always aspire but which it can never attain.

The fact of sound fidelity thus ensures a position for "live" music performance despite its "obsolescence" in Recording Practice (keeping in mind that "obsolete" means useless, not unused). In doing this, however, it nonetheless acknowledges itself as a fiction. On the one hand, it acknowledges that a music recording and what it allegedly documents are incongruous, that one hears a reproduction of certain sonic events by record reception which must lack where, when and by what technical means such events were in the first instance made. On the other hand, it acknowledges that a music recording, and what it allegedly documents, are identical, in that a music recording which exhibits a high degree of sound fidelity supposedly "extends" certain "original" speech acts beyond their untechnologized scope while a music recording which exhibits a lower degree of sound fidelity fails to do this.

Ultimately, record innovators and record receivers *must* tow this line between "Realism" and "Romanticism," which is the same line dividing the fact from the fiction of sound fidelity, whenever they make or receive a music recording. In undertaking Recording Practice, record innovators and record receivers only represent and realize mixes, and mixes only offer past tense aural narratives of sounds already heard rather than sound *per se*. Thus, music recordings do not — in fact, they *cannot* — "extend" anything; they can only enact. And each time they enact, music recordings demonstrate the operational impossibility of "sound fidelity" in Recording Practice.

Sound Fidelity: Semiotic "Content," Veridic/Nonveridic Mixes.

The concept of "sound fidelity" must proceed from an understanding of Recording Practice which posits certain music recordings as, to borrow John Andrew Fisher's terms, "veridic," and others as "nonveridic/constructive" (Fisher 1998, 109-123). According to Fisher, "veridic" music recordings are those which are "regarded as true-to-performance," and "which are guided by the notion of an independently existing 'live' performance that the recording documents" (Fisher 1998, 115). That is, "veridic" music recordings suggest how a "live" performance of a music recording "should sound, as established by some set of conventions for listening to performances of that sort" (Fisher 1998, 116). "Nonveridic" music recordings, on the other hand, posit the likelihood that "there will not be any actual, and there may not even be a possible, performance that the recording reproduces (other than a 'performance' consisting of a reproduction of the recording)" (Fisher 1998, 116). As such, sound fidelity and, therethrough, documentary authority, can be considered constitutable by Recording Practice through veridic record innovation techniques.

Still, how do listeners know simply by hearing a music recording that what they hear is invested with more or less documentary authority? How does one know that they are in the presence of sound fidelity, or that they should receive a music recording as though they were in its presence (that is, how do record receivers fashion sound fidelity from what they hear while they transduce)? To my mind, this is done by marking to what degree a music recording features "veridic" or "nonveridic" record innovation techniques, to what degree these techniques are made obvious to record receivers during and by their record receptions, and — what practically says the same thing — the spatiotemporal stability of a music recording's mix. Indeed, the final criterion for constituting "veridicism" which I list above encompasses the preceding

two. The "veridic" or "nonveridic" character of a music recording can be determined by marking the spatiotemporal path which the sonic phenomenon it "hears" both constructs and embeds itself within during and by its record receptions.

A music recording of Heitor Villa-Lobos's *Prelude No. 1* by Julian Bream (RCA Victor: 1971), for example, constitutes a configuration of "storage-state" data which, when it is transduced, sounds as a particular sequence of sound events which progresses linearly through the stable spatiotemporal continuum of a fixed, unchanging mix. That is, when it is transduced, *Prelude No. 1* sounds as though it documents a "live" performance precisely as it suggests that the exact performance heard on the music recording could be reproduced later (even if Julian Bream has been dead for some time now). This is so, in large part, because *Prelude No. 1* transduces in a manner which corresponds with the "live" convention of performing a composition from start to finish (it maintains the musical convention of beginnings and endings, that is); furthermore, it features an unchanging mix which "hears" Bream's performance from the same aural vantage throughout, and with only a slight degree of reverb added which is not unlike that added by the acoustics of a "live" concert setting. It is through these mixing and postproduction techniques that Bream's rendition of *Prelude No. 1* qualifies as properly "veridic," then; that is, to be clear, through the "veridic" record innovation techniques which it features, Julian Bream's rendition of Heitor Villa-Lobos's *Prelude No. 1* is (aesthetically) imbued with documentary authority.

Chronotope

It must be possible to systematize distinction of "veridic" from "nonveridic" recordings using Mikhail Bakhtin's notion of the "chronotope." Bakhtin borrows this

term from Albert Einstein's theory of relativity. For Bakhtin, though, "chronotope" means "the intrinsic connectedness of temporal and spatial relationships *that are artistically expressed in literature*" (Bakhtin 1984, 84). According to Bakhtin, every narrative suggests and, in so doing, builds and embeds itself within a path through time and space which serves as the spatiotemporal reality of the sequence of events it conveys. This spatiotemporal continuum is a narrative's chronotope. Certain chronotopes correspond to the way that time and space is experienced by a majority of individuals in a culture, and others do not. For example, as Bakhtin has it, the "folkloric chronotope" features "no passage of time" and "no moment of time" (Bakhtin 1984, 84). Space is traversed by characters in "ancient novels" according to the dictates of this "chronotope" and, subsequently, characters move according to what we may only currently conceive as the whim of an author whose spatiotemporal circumstance differs from our own urban-industrial context.

Alternatively, what Bakhtin deems the "modern chronotope" of a modern novel roughly approximates the so-called "mechanical" passage of time and space in bourgeois society (its "spatial bias," as it were). As Bakhtin claims, "food, drink, the sexual act in their aspects enter personal everyday life, they become a personal everyday affair.... they no longer line up with one another in a single context" (Bakhtin 1984, 84). Thereby, Bakhtin continues, the "modern" chronotope resonates with current readers's typical experiences of time and space in the city. Books which feature the "modern" chronotope thus become enmeshed within readers's everyday experiences. They belong on the kitchen table as an artifact of the very same sociopolitical moment which enables that kitchen table, in other words.

Veridic recordings must correspond with a musical equivalent of the "modern" chronotope, with the spatiotemporal erotics of "live" musical exchange. Nonveridic

recordings, on the other hand, would be better described as "chronotopically *indeterminate*." Though they are "modern" like a book, and though they probably have a better likelihood of existing as part and parcel of listeners's current urban-industrial circumstances, they bear no specific spatiotemporal relation with anything outside of themselves as veridic music recordings must. Thus, they belong only to the cultural practice of musically interpellating transduction, to the Network of Recording Practice, which exists *wherever* (that is, *anywhere*) sound reproduction technology happens to be given a musical use.

Nonveridic recordings, then, are qualified in sum as spatiotemporally related to the Network of Recording Practice. They exist only wherever sonic phenomenon is reproduced, which is a space both specific to itself and abstract enough to withstand a transduction *wherever* technologies of sound reproduction happen to be. Such a contradictory ontology constitutes "chronotopic indeterminacy." And, in fact, *every* music recording is "chronotopically indeterminate" to the same degree. They can all only be made or heard by transduction, after all. Veridicism must thus be a *reaction* to the "chronotopic indeterminacy" of music recordings, a means for record innovators to mystify or foreground the "chronotopic indeterminacy" of what they innovate. A veridic music recording mystifies its inherent "chronotopic indeterminacy" by referencing "the modern chronotope" of "live" performance practice through those mixing and postproduction techniques which it features. In so doing, it references and makes use of the concept of "sound fidelity" as achievable and desirable. Conversely, a nonveridic music recording foregrounds its "chronotopic indeterminacy" by prominently featuring nonveridic mixing and postproduction techniques. In so doing, it, too, foregrounds the concept of sound fidelity, though. It simply references the concept as achievable but undesirable.

Case Study: Nefertiti & Bitches Brew

How veridic and nonveridic listening positions (i.e., mixes) are made, and how they differ, are easily discernible through a brief study of Miles Davis's *Nefertiti* (1967) and *Bitches Brew* (1969-1970). According to Paul Tingen, Miles Davis undertook "a brave new experiment" in 1969, "creating a jazz track through postproduction" (Tingen 2000, 86). The product of that "experiment," *Bitches Brew*, earned Davis a Grammy nomination, an unexpected placing on the Billboard Top 40 Popular Music chart, the first gold record of his career, and the contempt of many critics who saw the album as, in one anonymous author's words, "a nearly fatal commercial dive." Those who valued *Bitches Brew*, however, considered it a paradigm shift in jazz Recording Practice. For example, Carlos Santana describes *Bitches Brew* as "the dawn of a new era.... a revolution of sound and colour... conveying [Davis's] belief that the genre of music represented by *'Round Midnight*, *My Funny Valentine* and *Milestones* no longer had validity and worth" (in Belden 1999, 1). Indeed, *Bitches Brew* was received by its admirers and detractors alike as a radical musical offering which broke with conventions of Recording Practice for the jazz genre, as a rupture in jazz History.

Though every sound featured on *Bitches Brew* was produced by instrumental performers, descriptions of it rarely reference their performances. Commentary does not generally proceed from the assumption that *Bitches Brew* exhibits any degree of sound fidelity worth noting, that is. Yet observations of *Nefertiti* (1967) seem limited to this aspect alone. For example, Bob Belden writes that "every part of *Nefertiti* — the horn lines, the bass notes, Herbie [Hancock's] voicings, and, most of all, Tony [Williams's] tour-de-force performance — has inspired many of today's jazz artists. This.... unorthodox performance demonstrates how great this group [read: the second

Miles Davis Quintet] was" (Belden 1998, 2). Of *Bitches Brew*, Belden writes only that it is a "tour-de-force in editing.... a composite composition" (Belden 1999, 1).

"Nefertiti" mimics many facets of the Miles Davis Quintet's "live" performance practice from 1962 to 1968, his so-called "Second Quintet" period. The track exhibits timbral verisimilitude with the instrumentation employed by the Quintet in concert, including trumpet, tenor saxophone, acoustic bass, acoustic piano and a drum kit. No sound processes — that is, no "effects" — such as, for example, flange or digital delay, augment these timbres. Furthermore, as with each track on *Nefertiti*, "Nefertiti" features clearly demarcated beginnings and endings, and follows the traditional chronology of a jazz performance as the Quintet alternates regularly between melody and improvisations. In sum, then, "Nefertiti" is characterized by linear chronology, from clear beginnings to their telemarked conclusions; the track follows the standard distribution of sonic phenomena across a properly "veridic" or "modern" spatiotemporal continuum which typically obtains during a "live" jazz performance.

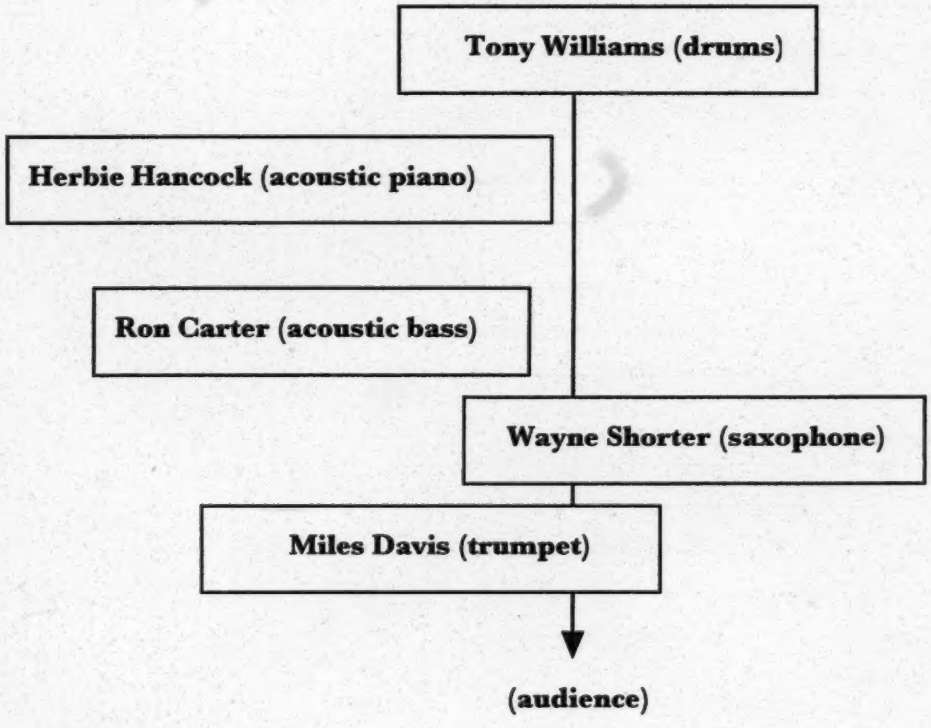
Moreover, the balance of the mix for all six tracks on "Nefertiti" is the same. The drums are mixed to occupy a lower right stereo position which spans into the upper right and center sectors of the stereo plane. To the left and slightly ahead of the drums, Ron Carter's bass occupies a more even height and width along the lower half of the mix compass. The piano is to the left and in front of the bass. In the center, occupying roughly the same foreground positions on the Proximity Plane, are Miles Davis's trumpet and Wayne Shorter's tenor sax. The trumpet and tenor sax are panned slightly apart along the Stereo Plane, such that Miles Davis's trumpet sound slightly to the left and Wayne Shorter's tenor sax sounds slightly to the right. Davis's trumpet is also faded slightly ahead of Shorter's sax. The depth of the mix is mostly static,

though. That is, there is little in the way of proximity plane motion for any tracks. Most crucially, these positions are maintained throughout the album, and they are representative of those featured on all of Davis's recordings from this period of his career. For instance, *Miles Smiles* (1966), *Sorcerer* (1967) and *Miles in the Sky* (1968) all feature this compass.

Figure 21. Mix Compass for Miles Davis's "Nefertiti," (my transcription).

The position of each instrument in the mix for *Nefertiti* corresponds to the positions assumed by the Miles Davis Quintet on stage during this time. Wayne Shorter was generally to the left of Davis, across the stage and slightly ahead of Herbie Hancock on the piano. Miles occupied center stage, flanked by Shorter on his left, while Carter stood behind and to the left of the trumpet but ahead of Tony Williams on drums. Herbie Hancock traditionally performed the acoustic piano from the right corner of the stage, just ahead of Carter but still behind Davis and Shorter.

Figure 22. Stage Positions assumed by Miles Davis's so-called "Second Quintet" Period, 1962-1968



The depth (that is, the total span of the Proximity Plane) of the mix for "Nefertiti" fulfills probably the most significant role in mimicking these positions. The vantage of the mix is fixed before the quintet, not behind (rather than an aural perspective from a stable vantage behind the ensemble, in which case the drum kit would occupy the closest position along the proximity plane of the ensemble's tracks, this mix expresses the obverse). The aural perspective to the site of sound production which results constitutes a convention of Davis's "live" performance practice, a reception paradigm learned under conditions of "live" musical exchange.

Thus, the mix for "Nefertiti" comprises a stable aural perspective to sound which is analogous to the perspective of concert hall reception. This is achieved by balancing tracks in terms of their proximity to each other and, overall, to the aural perspective of the mix. By its stable mix and the linear sequence of sound events it "hears," "Nefertiti" promotes the notion that it was and that it can be achieved via "live" performance. Because of this, it can be said to privilege the band's performance practice over its Recording Practice. That is, put alternatively, "Nefertiti" values Recording Practice only to the extent that it "extends" or "prostheticizes" the Quintet's performance practice.

In doing all this, the mix for "Nefertiti" promotes the notion that it is invested with documentary authority; it *posits* a high degree of sound fidelity, in other words. Thereby, it also *claims* that what is heard by "Nefertiti" was not nor is mediated by the very technologies which *enable* it. Ultimately, then, "Nefertiti," and any music recording which features a veridic mix and, thus, a "modern" chronotope, describes the proper role of sound reproduction technology in musical communications as that of a silent scribe, the "Realist" ideal. Such technology may witness and recount events as they

occur, but never offer commentary of its own. Should it offer such commentary, the spell of "sound fidelity" would break.

Recorded two years after *Nefertiti*, *Bitches Brew* exhibits a very different set of sound values. *Bitches Brew* is, according to Fisher's typology, "nonveridic." It does not sound as though it documents an actual nor even a possible performance. Rather, it sounds like it was manufactured for and by the sound reproduction medium. As such, it is obviously "chronotopically indeterminate," clearly "nonveridic." Though record receivers hear a composite of ensemble performances by transducing *Bitches Brew*, the postproduction and mixing techniques by which the album was made, and which in fact characterize it, create a different focus for listeners to attend to than does *Nefertiti*. This focus has been called, in turn, "experimental," "groundbreaking" and "revolutionary." Indeed, as Bob Belden explains, the larger "part of the legend of *Bitches Brew* is for its state of the art postproduction. Not only was massive editing used, but also reverb chambers, echo effects and tape looping" (Belden 1999, 1).

"Pharaoh's Dance," the first track on *Bitches Brew*, is typical of the album. As such, it is also typically nonveridic. In fact, as Belden has it, the track is "a composite composition" — no more, no less. A look at the edit-slate for "Pharaoh's Dance" explains why. Nonveridic postproduction techniques such as splicing and looping play a central role, and are clearly audible. A composite of thirty-five edits of material culled from three days of jamming in Columbia Studio B, "Pharaoh's Dance" was, in fact, completed 21 August 1969 — two days after the last note had been performed by instrumentalists in the studio.

Table 2. Edit Slate for "Pharaoh's Dance" (1969), noting all spices, adapted from slate provided in liner notes.

PART 1 (0:00-8:28)

TIME OF SPLICE	*TRACK MARKING*
:10	Figure 1
+:15	Vamp 1
+:46	Figure 2
+:56	Back to Figure 1
+1:29	
+1:39	Back to top
+1:51	B pedal
+2:22	
+2:32	Miles in
+3:31	Miles reappears
+5:40	Bennie Maupin bass clarinet solo
+7:55	Vamp 1

PART 2 (8:29-15:17)

TIME OF SPLICE	*TRACK MARKING*
+8:29	Part II intro
+8:42	
+8:44	Part II intro
+8:52	2-beat phrase
+8:54	Four loops of Part II intro
+8:59	Vamp 1/Miles solo
+11:48	Wayne Shorter tenor saxophone solo
+12:53	John McLaughlin electric guitar solo

PART 2' (15:18-20:02)

TIME OF SPLICE	*TRACK MARKING*
+15:18	Part 2' vamp
+16:38	Miles enters with melody (from +2:32)
20:02	End

"Pharaoh's Dance" progresses according to the logic of nonveridicism, the logic of sound reproduction. The traditional chronology of a jazz performance (i.e., head, chorus/improvisation, head, etc.) is refigured each time a splice or loop sounds on the track. Fourteen edits occur within the first three minutes and, as each splice rudely interrupts the performance which precedes it *in medias res*, attention is drawn from the

traditionally valued instrumental prowess and complexities of Miles Davis's jazz performance practice to the way that sound reproduction technology is exploited by Macero to order an amalgam of sound.

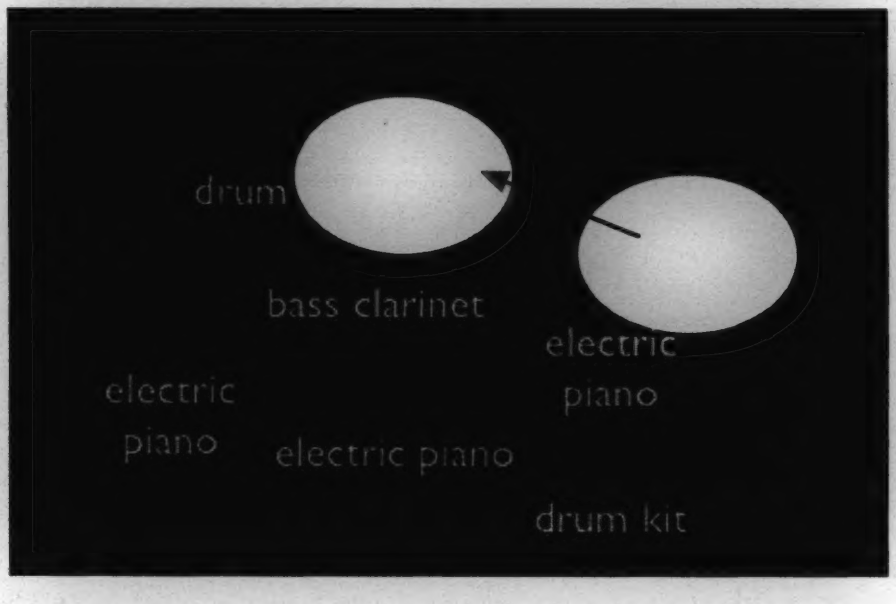
Each of the splices and loops featured on "Pharaoh's Dance" are heard by record receivers, *if* they are heard, in real-time. They are as integral to "Pharaoh's Dance" as are the instrumental performances they interrupt and reorder. For example, the improvisations featured on "Pharaoh's Dance" by Bennie Maupin, Wayne Shorter and John McLaughlin retain significance in the traditional sense. However, they are contextualized into a nonveridic setting via overt edits by Teo Macero. In fact, during the eighth minute of "Pharaoh's Dance," no less than eight splices and two loops sound directly after two minutes of an uninterrupted bass clarinet solo by Bennie Maupin.

Macero's production work interacts suggestively with the mix compass of "Pharaoh's Dance," signifying nonveridicism (that is, foregrounding "chronotopic indeterminacy") through each overt change in the mix compass which accompanies each nonveridic record innovation technique that Macero introduces. A major shift in the mix compass sounds at 1:39 into "Pharaoh's Dance," for example. Before this point, though one hears a number of splices and loops already, the mix compass remains mostly stable. Lenny White's hi-hat heavy drum track, for example, sounds in the left portion of the stereo spectrum. Bennie Maupin's bass clarinet occupies a stereo left to center position. Joe Zawinul's electric piano occupies roughly the same position, though somewhat below, while Larry Young's electric piano sounds dead center. Chick Corea's electric piano is stereo right, below and at an equal position along the Proximity Plane as John McLaughlin's electric guitar track which, in turn, spans to an upper right Height, slightly above and before Jack DeJohnette's ride-cymbal heavy drumkit track, which occupies a stereo right position.

Figure 23. Mix Compass as instantiated by "Pharaoh's Dance" from 0:00 to 1:39 (my transcription).

At exactly 1:39 into "Pharaoh's Dance," though, when the splice marked "back to top" on the edit slate sounds, the mix changes dramatically. Indeed, "Pharaoh's Dance" does not repeat itself exactly at this point, does not go "back to top" as the edit slate suggests. The same tracks are heard after this splice, to be sure, and in the same position in the mix, but with one notable exception: John McLaughlin's electric guitar track is now heard stereo left, before Lenny White's hi-hat heavy drumkit track and slightly behind Benny Maupin's bass clarinet track. At 2:33, when Davis enters the already muddled fray, McLaughlin's track moves back to its original position, where it stays for the remaining 17 minutes and 25 seconds.

Figure 24. Mix Compass for "Pharaoh's Dance" from 1:40 to Miles's entrance at 2:33 until 2:34, when McLaughlin's track resumes its original position in the mix (my transcription).



These "leaps" across the stereo spectrum, from one second to the next, signify a manner of hearing to record receivers which can only be "done" by using sound reproduction technology for musical purposes. These "leaps" signify "nonveridicism," then, being the result of those properly "nonveridic" mixing techniques which "splicing" and "panning" name, just as they signify "chronotopic indeterminacy." Ultimately, they signify that what is heard by transducing "Pharaoh's Dance" can only be done and heard by transduction, that "Pharaoh's Dance" is a past tense aural narrative, as opposed to a transparent document, of some "live" performance.

It was not exactly jazz performance practice which Miles Davis did away with on *Bitches Brew*, then. After all, "Pharaoh's Dance" features nothing but instrumental performances following conventions of jazz, free jazz and funk-fusion. It is how these performances are figured by Teo Macero as units of "storage-state" data which breaks most completely with tradition in the jazz genre. Indeed, Miles Davis and Teo Macero specifically challenged conventions of jazz Recording Practice by *Bitches Brew*.

Each postproduced edit of "storage-state" data which "Pharaoh's Dance" stores reminds record receivers that what they hear by transducing the track — *if* they transduce the track — is a music recording as opposed to a concert performance. They instantiate change in the mix compass, and such change, in turn, signifies a way of "hearing" which is simply too spatially mobile to ramify as anything but a way of hearing made for and by sound reproduction technology, which is to say, Recording Practice. Thus, any overt nonveridic mixing technique heard on "Pharaoh's Dance" — and throughout *Bitches Brew*, for that matter — signifies nonveridicism as it signifies something "musical" in the "live" sense. It signifies making musical communications by the sound reproduction medium while it signifies anything else.

Sound Fidelity: Negative Instance of Veridic Production Techniques.

Put simply, then, veridic and nonveridic music recordings are negative instances of one another, inverted instances of the selfsame "chronotopic indeterminacy." In turn, sound fidelity is the negative instance of nonveridicism. It is what's signified by veridic record innovation techniques and what's signified as conspicuously absent by nonveridic techniques. "Sound fidelity" is a convention of "live" musical exchange interpellated into Recording Practice, then — a model of communications which entails

"senders" and "receivers," and musical "information" being transparently exchanged between them, in a more or less dignified manner.

What this overlooks is Recording Practice's "obsolescence" of "live" musical convention, the uselessness of such convention which the former *makes*. Sound fidelity must thus be a ploy to preserve the primacy of "Live" or "Concert" performance, and of "live" music performers, in musical communications, even in the face of their collective "obsolescence." In short, "sound fidelity" is a certain, conventionalized "obsolescence" achieved, acknowledged and refused.

SECTION THREE

Record Reception: Chronotopic Indeterminacy.

Commentary on Recording Practice tends to end with record innovation. For the most part, commentators describe the uniqueness of making music recordings and, with that, conclude. To my mind, this is due primarily to a lopsided focus on, and a misunderstanding of, record innovation. Analytic sights remain chiefly trained upon making music recordings at present, but analysts often misunderstand conveying or "extending" what musicians have to say as its goal. In so doing, they assume that record innovation occurs first and foremost to make music happen, when it occurs beforehand to make object-forms of the sound reproduction medium (i.e., music recordings) which are "technically linked" with stereo systems (see Chapter 1). As such, commentators take Recording Practice as an "extension" of "live" musical communications, rather than as an industrial procedure for making and selling objects of a sort.

Albin J. Zak III, for example, writes that "in the study of musical practices, musicians themselves are our best guides" (Zak III 2001, *xiii*).[35] Indeed, moments before embarking upon his analysis of Recording Practice, Zak III concedes that "it is from their [read: musicians's] knowledge that I have fashioned my account" (Zak III 2001, *xiii*). But Zak III does not study "live" musical practice *per se* by interrogating the

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[35] In alphabetical order: Michael Chanan observes that sound reproduction technology presents humanity with the problem of reasoning the potential of the human voice for reproduction, yet he focuses only on how this affects the studio practices of record innovators such as John Cage and the Beatles, in Michael Chanan, *Repeated Takes*; Steve Clarke observes that recordings now occupy a central role in the transmission of music, but he discusses only those practices which record innovators undertake, in Steve Clarke, "A Magic Science"; Sean Cubbit likewise concentrates only on the record innovator's experience in Recording Practice, though the title of his article suggests otherwise, in Sean Cubbit, "Maybellene: Meaning and the Listening Subject," *Reading Pop: Approaches to Textual Analysis in Popular Music*, ed. Richard Middleton (New York: Oxford University Press, 2000), pp. 141-159; Andrew Goodwin studies how "virtual" drum tracks are often considered the "live" track during record innovation, but he mentions nothing about listeners who hear such tracks, in Andrew Goodwin, "Drumming and Memory: Scholarship, Technology and Music Making," *Mapping the Beat: Popular Music and Contemporary Theory*, eds. Thomas Swiss, John Sloop and Andrew Herman (Malden: Blackwell Publishers, 1998), pp.121-137; Sheila Whitely likewise offers a history of rock's past through its covers, focusing only on what record innovators have made of covers in the past, in Sheila Whitely, "A History of Rock's Past Through Its Covers," *Mapping the Beat: Popular Music and Contemporary Theory*, eds. Thomas Swiss, John Sloop and Andrew Herman (Malden: Blackwell Publishers, 1998), pp.137-153; Paul Théberge comes closest of all these to addressing the experience of record receivers of Recording Practice but he ultimately relates any observations of music technology's musical ramifications back to how recordings are innovated, in Paul Théberge, "What's That Sound? Listening to Popular Music Revisited," *Popular Music — Style and Identity*, eds. Will Straw, Stacey Johnson, Rebecca Sullivan and Stacy Friedlander (Montreal: Centre for Research on Canadian Cultural Industries and Institutions, 1996), pp.175-183, and Paul Théberge *Any Sound You Can Imagine: Making Music/Consuming Technology* (Hanover: Wesleyan University Press, 1995).

Network of Recording Practice. Instead, he studies musical interpellation of transduction and of sound reproduction technology, a series of networked uses for sound reproduction technology which are each a part and parcel of a broader industrial production model without which Recording Practice, in its current incarnation, simply could not exist. Nonetheless, most studies of Recording Practice follow Zak III's lead. This leads to a general neglect of the situation of record reception in the musical labour of Recording Practice.

In fact, a rendering of Recording Practice is conceivable such that record receivers fulfill the most productive of all musical roles. It is, after all, only during and by record reception that sound is made from those inherently silent objects which store the inherently silent configurations of code that record innovators make during record innovation. This perspective questions an entire interpretive tradition which casts record reception as consumption *per se*. Roland Barthes, for example, infamously wonders "who plays the piano anymore?" en route to casting the musical landscape of Western capitalist modernity (which he claims as a "technologically determined" "expression" or "revenge effect" of Recording Practice) as a desert barren of even a dollop of creativity (Barthes 1977, 149-154). There are no longer many amateur musicians out there, Barthes claims. Nobody *makes* music anymore; they only make and hear objects of a sort, or, commodities. Thus, amateur musicianship has become consumption *per se*.

Contra Barthes, it could be argued that there are certainly amateur musicians today, that they simply do not perform the same musical instruments they once did. For example, it could be said that many amateur musicians now perform sound reproduction technology. Just as amateur pianists must necessarily learn a number of techniques that are specific to the piano in order to perform on one, so, too, must record

receivers learn techniques specific to sound reproduction technology to make a record reception happen. Furthermore, in undertaking a record reception, record receivers make music happen, while record innovators can only make "code" happen. The volume at which record receivers set their stereos to transduce, for instance, shapes the span of the "mix compass" they hear during and by their record receptions; fading frequency parameters such as "bass" and "treble" likewise alters the mix of a music recording such that certain of its frequencies are foregrounded while others are not. In fact, whenever somebody, say, boosts the bass, they argue with record innovators for a more bass-heavy configuration of sound (that is, for a bass-heavier mix) just as they produce that configuration of sound from a silent and inanimate object, which is something like what performers do when confronted with a score, for example.

There even exist record receivers today who have shaped their practice into an especially specialized one: "audiophiles." A terminology exists within audiophilic circles which is esoteric or occultish to a staggering degree. The "sweet spot," for instance, is the specific location within the playback environment wherein data optimally transduces, "the ideal place to.... hear audio sound" (Bubas 2001, 32). While each room has a "sweet spot," audiophiles expend an enormous amount of time, energy and money to locate and optimize this spot. Some have gone so far as to engage in amateur architectural acoustics — they alter the architectural design of rooms — to enhance a "sweet spot." Moreover, audiophiles debate the merits of solid-state receivers versus tube amps, the "fidelity and accuracy" of digital sound reproduction technologies over the "warmth, liquidity and character" of analog varieties (Bubas 2001, 33). Asked by Karen Bubas about his reception practice, George Todai, for one, notes that "the Blue Note jazz stuff sounds particularly good on my

four-watt tube amp but I play some of the newer music, like dance, through my current model receiver, a 1996 ES Sony" (Bubas 2001, 33).

Audiophiles are rare, however. While little in the way of data exists which might prove their rarity, audiophiles cannot be representative of the majority of record receivers (after all, were they representative of record receivers in general, audiophiles would be record receivers like any other, not audiophiles). That being said, even the more "average" of record receivers are audiophilic to a certain degree. They transduce the data which record innovators create and, in so doing, they make music happen. Crucially, they do so in accordance with what seems best given their immediate circumstance, and given the means for optimizing record reception at their disposal. As such, it is record receivers in general, no matter how audiophilic, who most obviously *seem* to fulfill the final moment of productivity in the Network of Recording Practice. As best they can, record receivers make the music which record innovators figure as data happen as sound. In doing so, they *seem* to perform sound reproduction technology as a pianist performs a piano.

No matter how audiophilic, however, record reception *depends* upon the various "contents" which record innovators make. Mechanical, electromagnetic and digital code, and the music recordings which store such code, simply *must* exist for there ever to be a record reception. Thus, record reception is *made* by record innovation. It is consumption *per se* of what record innovators make and, thereby, of record innovation itself. Indeed, record innovators are in the first instance "content" providers for those technologies which enable record reception. Record receivers must, then, be consumers of such "content" to begin with. As Karl Marx explains, even with regards to the Network of Recording Practice, "before distribution means distribution of products[,] it is first a distribution of means of production, and second, what is practically another

wording of the same fact, it is a distribution of the members of society among various kinds of production, the subjection of individuals to certain conditions of production" (Marx and Engels 1989, 12). The separation of record innovators from record receivers over the course of a musical communication which Recording Practice *mandates* constitutes just such a "distribution." Record innovators and record receivers depend equally upon consumption of sound reproduction technology to make happen those musical communications in which they engage, but record receivers *also* consume those generations of sound reproduction technology which record innovators create (i.e., music recordings). In which case, record innovators simply profit by the consumptions of sound reproduction technology which Recording Practice requires.

The space of record reception probably best demonstrates this. Wherever a music recording sounds is a space of record reception. Wherever a music recording does not sound constitutes a space which is, at the time, not one of record reception. Because one may only hear a music recording by consuming it as a missing component of some kind of stereo system, all that enables the space of record reception is sound reproduction technology. As such, this space is a product of the sound reproduction industry and, therefore, of record innovation. It is something one must consume to hear a music recording precisely as one, in this case, reproduces and inhabits it. It is also generally privileged within the Network of Recording Practice as the only space therein where sonic phenomena *must* exist (one may innovate a music recording entirely using code). Only if such space is made can Recording Practice happen, and only if music recordings are made to begin with does such space exist.

Thus, if Brian Eno is correct to assume that "the goal of *all* ambient recordings is to instantiate space," as I previously argue he is in Chapter 1, then every music recording must be ambient (Eno 1978, 1). So, too, must record innovators and record

receivers be "ambient"; that is, they must equally surrender their communicative agencies to "chronotopic indeterminacy." In so doing, they must accept the fact that, as Jonathan Sterne puts it, "the singer sings to the microphone, to the network, not to the person listening at the other end" (Sterne 2003, 390). In which case, they also assume that "the person listening at the other end" is likewise attuned not to the singer but to the Network, even if they are that person. Ultimately, *though it is record receivers who complete all those musical communications which qualify as Recording Practice, they do so only if record innovation occurs before.*

Record receivers thus construct the "chronotopically indeterminate" space(s) in Recording Practice where sonic phenomenon happens, and where musical communications reach fruition, but only as Recording Practice *requires* them to. They cannot, for example, make a space of record reception which is not "chronotopically indeterminate." Furthermore, they can only make a "chronotopically indeterminate" space of record reception if record innovators furnish them with certain requisite materials to consume first. Thus, record innovators do not produce a "voice" which is conveyed to record receivers by Recording Practice except, perhaps, in the very last instance. First, they make generations of sound reproduction technology — *objects* — known as "music recordings," which record receivers must consume in combination with other, "technically linked" sound reproduction technologies for Recording Practice to happen. In doing this, record innovators and record receivers work cooperatively to make a "chronotopically indeterminate" space of record reception which all record receivers must consume and habit to experience sound organized somehow. Only then is a "voice" possible. Indeed, who plays the piano anymore?

Record Reception: "Text."

Furthermore, it is generally agreed that what record receivers hear by their record receptions are musical "texts." Because "texts" are now mostly defined as social spaces open to multiple, oftentimes contesting habitations, music recordings are therefore deemed poly-semantic.[36] This is the case in terms of how a music recording sounds, to be sure (with the provision that "poly" means "multiple" and not "infinite"). However, with regards to Recording Practice, the "text" which record receivers hear is actually a configuration of data *rendered* as sound. Recording Practice only happens when somebody produces and consumes mechanical, electric, electromagnetic or digital code, after all. Thus, the sonic phenomenon which is thereby made and heard is only secondarily "textual." It is, in the first instance, *derivative* of the code which a music recording stores; of mechanical, electric, electromagnetic or digital energy configured somehow by record innovators.

Aside from this, claiming how a music recording sounds as the "text" of Recording Practice insists on the existence of something called "the music itself." It assumes a certain degree of autonomy for sound from those social processes (i.e.,

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[36] This notion of what constitutes a "text" and "textuality" is generally derived from the work of Roland Barthes, Stanley Fish and Mikhail Bakhtin, among others. See, for instance, Roland Barthes, *The Pleasure of the Text*, trans. R. Miller (New York: Hill and Wang, 1975); Roland Barthes, "From Work to Text," *Image — Music — Text*, trans. Stephen Heath (New York: Hill and Wang, 1977), pp. 155-164; Stanley Fish, *Is There a Text in this Class? The Authority of Interpretive Communities*. (Cambridge: Harvard University Press, 1980); Mikhail Bakhtin, "Epic and Novel," *The Dialogic Imagination*, ed. Michael Holquist, trans. Caryl Emerson and Michael Holquist (Austin: University of Texas Press, 1981), pp. 3-40, and "Discourse in the Novel," *The Dialogic Imagination*, ed. Michael Holquist, trans. Caryl Emerson and Michael Holquist (Austin: University of Texas Press, 1981), pp. 259-422.

Recording Practice) which make and organize it; it disagrees, in fact, with the proposition that musical conventions are *prima facie* social conventions, which is to say, it is a kind of idealism. What sneaks by such a reading of Recording Practice are the operations of technology which record receivers must undertake to ever hear a music recording, those things they must physically do with sound reproduction technology to make a record reception happen. These operations, and the sonic phenomenon they produce, are equally "textual" — one cannot exist without the other. Thus, the most fundamental component of the "text" which a music recording stores are those actions, those *physical behaviors*, which record receivers must undertake to procure and render them as sound. As such, "reading" in Recording Practice begins with, well, the *act* of "reading," which are those things people must physically do with sound reproduction technology to procure record "content," regardless of that "content" or the ends to which it is put.

Strict "textual analysis" of music recordings ultimately misses this and, in so doing, overlooks the fundamental "chronotopic indeterminacy" of "storage-state" data. By studying only how music recordings sound, or by treating such sound as autonomous from the operations of technology by which it is made and heard, commentators assume that a music recording sounds either specifically or abstractly, as a particular or standard organization of sonic phenomena. In turn, critics study these organizations, *however* they constitute them, as evidence of either total standardization of musical experience and thought or emancipation from previously standardized instantiations of such experience and thought, even if music recordings transduce as simultaneously specific *and* abstract. No matter their intent in so doing (critics could, after all, choose to overlook the act of Recording Practice in order to use it instrumentally, because the sound is what interests them) the inextricability of sound

from data and the *physical behavior* of transducing which Recording Practice requires thereby continues on unremarked.

Thus, while music recordings might sound poly-semantic, they are anything but. A music recording may sound as a social space open to any number of habitations, that is, but it always is and will be the same "chronotopically indeterminate" variety of space which every other record receiver is required to make and inhabit for a record reception to happen. Music recordings are, then, mono-semantic. They denote musically interpellating transduction — consuming sound reproduction technology to "do" musical communications — as does any activity which occurs in the service of, and/or as part of, Recording Practice.

The "Message" of the Network of Recording Practice
Stricture, Deterrence, Technocracy

> *According to Marshall McLuhan, certain media "make it possible for the mass-man to entertain the illusion that he is meditating, racking his brain" (McLuhan 1970, 3). Indeed, "not only does the cinema rob the daydream of its confused, evanescent aura, dispersing the mist to reveal very clear ghosts similar to living men yet of greater stature, not only does it silence the voice of reality by saying 'I can do without you,' but society, too, gradually becomes incapable of giving lie to the somnambulist. At one time a young man zigzagging down the street, wriggling his hips and mumbling 'bee boh, boh, boh, bee bee boh boh' or grimacing with gritted teeth and narrowed eyes, would have been mocked and so awakened. Today he encounters no opposition or criticism; everybody recognizes and understands the dream in which he is immersed, the dream made respectable by industry" (McLuhan 1970, 12).*

Institution.

> According to Paul Starr:
>
> Once technological development moves in a particular direction, strong inertial forces favor continuing down that path. Initial choices in design also develop into more elaborate systems as individuals and firms pursue complementary innovations.... Network technologies and institutions based upon them develop particularly strong inertial tendencies because of the interconnections and interdependencies they create (Starr 2005, 5).

As such, Starr continues, probably the best way to think about media is to consider them in the same terms one might use to consider an "institution," that is, as "*processes* which operate within" precisely as they constitute "social frameworks" (Scott 1995, 2; my emphasis). However, as Scott elsewhere notes,

> much of the challenge of this subject.... resides in the many varying meanings and usages associated with the concept of institutions. As one of the oldest and most often-employed ideas, it has continued to take on new and diverse

> meanings over time, much like barnacles on a ship's hull, without shedding the old (Scott 1995, *xiv*).

For my purposes, the definition of an "institution" which Everett Hughes provides constitutes a good starting point. To Hughes's mind, an institution is "a habit of mind and of action, largely unconscious" because it is "largely common to all the group" (Hughes 1956, 313). Thus, "the individual is always cause as well as effect of the institution" (Hughes1956, 314). That is, "institutions exist in the integrated and standardized behavior of individuals" (Hughes 1956, 319). Ultimately, then, and solely for the purposes of this dissertation, I define an "institution" as "a product of joint activity and association, the effect of which is to 'fix,' to 'institute' outside us, certain initially subjective and individual ways of acting and judging" (Alexander 1983, 259). Of course, I offer this definition with a provision:

> To say that behavior is *governed* by rules is not to say that it is either trivial or unreasoned. Rule-bound behavior is, or can be, carefully considered. Rules can reflect subtle lessons of cumulative experience, and the process by which appropriate rules are determined and applied is a process involving high levels of human intelligence, discourse and deliberation (March and Olsen 1989, 22; my emphasis).

Road Map to Chapter Four.

In this chapter, which also serves as a broad summary and conclusion for this dissertation, I argue that Recording Practice is located within the institution — that is, within "the framework for behavior" — of the sound reproduction medium. In Section 1, I develop Harold Adams Innis's notion of the "bias" of communications, and Marshall McLuhan's notion of "premise" in communications, to construct a

perspective on the sound reproduction medium and, by extension, on Recording Practice, which sees both the former and the latter as two of Western capitalist modernity's many constituent institutions, all of which work in tandem to secure continuing authority for capitalist production and distribution of abundance. Put simply, I describe Recording Practice as a "communications system" which ultimately works to secure the compliance of all musical communications as are made by it with the capitalist mode of production. This argued, I elucidate the Network of Recording Practice as a "technocracy." Next, in Section 2, I explore this "technocracy" on the level of the individual, examining the various ways that its "rules" inhere in the social practice of making and hearing music recordings. Finally, in Section 3, I argue that Recording Practice is, itself, a part-and-parcel of the capitalist mode of production, and that it achieved Innisian "dominance" the second an industry developed around it to ensure socially acceptable manufacture, distribution and use of its object-forms.

SECTION ONE

The "Bias" of Communications.

According to Harold Adams Innis, "the West evolved through a series of violent and destructive oscillations between two forms of dualism [which] he referred to.... as 'biases" (Stamps 1995, 64). One of these "biases" was "temporal" while the other was "spatial." Far from innocent, both the temporal *and* the spatial "bias produce static cultures" to Innis's mind, "and, so, neither is conducive to open thought" (Stamps 1995, 64).

In fact, the temporal and spatial "biases" are, according to Innis, *determined* by the material properties of whichever medium people most often use to communicate. Thus, a culture which exhibits a strong "temporal bias" will most likely employ a "massive" medium as its preeminent vehicle of communication; it will most likely be dominated by media which are literally heavy, expensive, durable, onerous if not impossible to replicate, and, thus, difficult to transport and distribute. Because of the scarcity of *means*, here, according to Innis,"writing becomes the possession of a special class and tends to support aristocracies" (Innis 1951, 4). As such, the "temporally biased culture" both "facilitates" and "profits by" certain "monopolies of knowledge" (Innis 1951, 4). For these reasons, a time biased culture is unlikely to develop "mass media." Ultimately, the élite in such cultures:

> Will be preoccupied with time in a distinctive, inwardly oriented manner that operates at a number of levels.... The political structure in this culture will be inwardly oriented as well, for two reasons. The society as a whole will be geographically limited, since the communications media available to it are entirely unsuited to the administration of large areas.... Moreover, the society will be representationally limited, since the elite that controls the key communications technology will also hold the formal positions of power. The result will be a fixed social totality that is politically conservative, tradition-bound, sacred, inwardly focused, and philosophically idealist (Stamps 1995, 75-76).

In contrast, a "spatially biased culture" typically employs "light" media. They are, then, cultures dominated by media which are literally light, relatively inexpensive, easily degradable, easily duplicable, and, therefore, easily transported and distributed. As such, space biased cultures are generally characterized by "mass media" and should thus:

> Favour a more geographically expansive society,since they make possible administration over wide areas..... The general outlook of the space bias will be present-minded, or pragmatic, tending to the secular.... Though spatially expansive, the resulting polity will lack the impetus to change qualitatively; it will value uniformity and administered sameness as represented in its military and its systems of orthography. For this reason, its time will be that not of enduring tradition but rather of technique. Thus it will be culturally static, but in a distinctive sense[:]..... it will tend not so much to belief in a static eternity, as in a time-biased culture, as to identify reality with the moment. This stance will lock it into an eternal present. This society's crude spatial and technical outlook will also give it a spatial philosophy. It will be crudely materialistic, identifying the objective with the purely material (Stamps 1995, 76-77).

Technology Replaces Ontology.

Innis identified modern Western civilization as spatially biased *in toto*. According to his typology, the West is therefore also "ocularcentric" or "visually biased," since space is a primarily visual medium to Innis's mind. Because the eye can be so easily deceived, Innis worried that the West was growing increasingly irrational as a consequence of spatial primacy. According to Innis, "modern developments in communication" occurring in the West — for instance, the printing press and typography, telegraphy, photography, phonography, etcetera — "made for greater realism" and, therefore, "for greater possibilities of delusion" (Innis 1951, 82).

A spatially biased culture is thus a culture in which, as Herbert Marcuse puts it, "technology has replaced ontology" (Marcuse 1989, 63). When this happens, Marcuse frets, "every signification, every proposition is validated only within the framework of the behavior of men and things — a one-dimensional context of efficient, theoretical, and practical operations" (Marcuse 1964, 121-122). That is, all that matters to the so-

called "technological society" is the operationability of a thing, and its capacity to extract temporal delay from manufacture or gratification through consumption (the twin tendencies of capitalism). In turn, both capabilities lead to patent legitimization by a society of atrocities such as, for example, war, imperial conquest, genocide and slavery, regardless of any moral perspective on such atrocities, because morality is a system of transcendent qualitative thought which remains incompatible with the broader compulsion to quantify everything that a spatially biased culture suffers from.

Clearly, then, Innis was no fan of the spatial bias. To his mind, the ocularcentrism inherent in this bias categorically denies sound's viability as a medium of communication. As such, it pathologically shoves dialogue, and other sound based modes of communication, to the margins. This is, however, a Janus-faced victory at best: the margins made by spatial primacy continually erode that primacy to the point of a palimpsest.

Indeed, a spatially biased culture must *always* marginalize temporal primacy. In which case, the spatial bias is, ultimately, a *process*, which entails marginalizing temporal primacy and, then, empowering it again, just enough that it may be marginalized once more (rather than only have its marginality confirmed). As such, to Innis's mind, spatial dominance is finally irrational and self-destructive. It cannot marginalize once and for all what it needs to marginalize in order to assume a full authority. Consequently, its authority can never be fully confirmed, a fact which leads the "spatially biased" culture to inevitable catastrophe(s).

The Temporal Élite.

Of course, the temporal bias was little better to Innis's way of thinking. Temporal primacy skews a culture towards élitism, given its need for communications specialists such as, for instance, scribes. As Innis claimed, "specialization.... is *always* in excess" (Innis 1951, 139).

Still, according to Innis, the systems of social administration which obtain under conditions of temporal primacy are sound biased, based upon the ear entirely. Because of this, they are more open to the margins which they create by way of the diffusion of dialogue. Not surprisingly, then, Innis concluded his career by making "a plea for time" (Innis 1951, 61). That is, Innis ended his career by calling for scholars to "consider.... the role of the oral tradition as a basis for a revival of effective [and] vital discussion" (Innis 1954, 32). However, the often cryptic writing style which Innis developed to argue this is generally agreed to have deterred most readers from paying any attention to him while he did so.[37]

The Spatial Bias of Recording Practice.

Nevertheless, according to Innis's typology, Recording Practice interpellates a spatial bias into each of its operations. The qualitative sense of time — that is, the

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[37] As Judith Stamps notes, "Innis's communications studies make for truly difficult, if interesting, reading. They were even more difficult for the scholars of his day, since in North America they had no precedent. They were far too nonlinear and speculative for the positivists, and they employed a vocabulary unlikely to attract philosophers, including the philosophical Marxists, from whose attention they might have benefitted. As a consequence, Innis mystified his audiences and most of his readers. An effective reading of his texts by a contemporary was thus a rare accomplishment," in Judith Stamps, *Unthinking Modernity: Innis, McLuhan and the Frankfurt School.* (Montreal: McGill-Queens's University Press), 97.

"temporal bias" — of, say, "Live"/"Concert" Exchange or seasonal agriculture is actively marginalized or suppressed by Recording Practice in favour of the quantitative/objective mechanical time of, say, the factory, the stopwatch, the international traveler's report or a configuration of data on a music recording which always was and always will be exactly four minutes and sixteen seconds long. In Innis's words,

> industrialism implies technology and the cutting of time into precise fragments suited to the needs of the engineer and the accountant. The inability to escape the demands of industrialism on time weakens the possibility of an appraisal of limitations of space. Constant changes in technology particularly as they affect communication, a crucial factor in determining cultural values (for example, the development of radio and television), increase the difficulties of recognizing balance let alone achieving it (Innis 1951, 140).

In fact, not only sonic phenomena but musical practice itself *becomes* technology by Recording Practice, something which is spatialized and objectified by every music recording and every generation of sound reproduction technology manufactured to make a music recording musically useful. Every sound which is made, conveyed and received by Recording Practice is, in actuality, a "content" of sound reproduction technology, which is to say, it is always nothing more than an object-form of the sound reproduction medium. As such, by Recording Practice, semantics ultimately become a product of operating technology, as do any social, emotional or sociopolitical surpluses (i.e., "feelings") which are generated by operating technology.

Ultimately, "the spatial bias is a state of mind created by *suppressing* the qualitative sense of time associated with bodily and seasonal rhythms in favor of uniform time segments" (Stamps 1995, 7). Spatial primacy is, then, the negative

instance of temporal primacy. It is also, however, a consequence of the capitalist drive to quantify the world for purposes of commodifying it. As Karl Marx explains:

> the subordination of man to the machine situation arises in which men are effaced by their labour; in which the pendulum of the clock has become as accurate a measure of the relative activity of two workers as it is the speed of two locomotives.... Time is everything, man is nothing.... Time sheds its qualitative, variable, flowing nature; it freezes into an exactly delimited, quantifiable continuum filled with quantifiable things.... in short, it *becomes* space (Marx cited in Lukacs 1983, 89-90).

"Bias" and Cultural Self-Awareness.

Though theorists have entertained the possibility of such "biases" as Innis identified since at least the time of Karl Marx, it was Innis who first actively sought to posit a causal link between a culture's "spatial" or "temporal" bias and the media it most often uses to communicate. In fact, to Innis's mind, a culture's preeminent media of communications *determine* how it goes about constituting itself as a corporation of Selfs capable of sharing some set of capacities in particular to know and have communicative recourse to an object world. "Concentration on a medium of communication implies a bias in the cultural development of the civilization concerned either towards an emphasis on space and political organization or towards an emphasis on time and religious organization," Innis writes (Innis 1951, 170). That is, to Innis's mind, how a particular people communicates determines the total inventory of what they can say about the world, and how they can explain their position within it, which is, beforehand, determined by the material properties of whichever media they use to constitute, store and disseminate, such information.

On a culture-wide scale, then, a culture's dominant medium of communication plays a key role in determining how it develops knowledge about itself and, in turn, about the world surrounding it. This, in turn, exerts a tremendous influence over how that culture interacts with the world they use media to perceive. Perhaps indicative of his status as a citizen of post-colonial Canada, Innis's primary concern was that a strong spatial bias inevitably skews a culture towards a view of the world as one big endless resource, which is to say, a "spatial" bias skews a culture towards imperialism and, inevitably, towards aspirations of Empire.

The "Premise" of Communications.

Marshall McLuhan would first deploy the notion of "bias" just under a decade after Innis formulated it. He did so to uncover the "sensory privileges" at work in the media of phonetic literacy and typographic print, and published the results in a book he entitled *The Gutenberg Galaxy: the Making of Typographic Man* (1962). Indeed, McLuhan's was not a new way of thinking, not to his mind anyhow. It was, rather, Innis's basis reasoning about the media applied to so-called "typographic man." In McLuhan's words:

> Harold Innis, in his *Empire and Communications*, was the first to pursue this theme. In short, Harold Innis was the first person to hit upon the *process* of change as implicit in the *forms* of media technology. The present book [*The Gutenberg Galaxy*] is a footnote of explanation to his work (McLuhan 1962, 50).

In his "footnote of explanation" to Innis, McLuhan contributes the concept of "premising." It is the techniques which media objectify that matter most for McLuhan. Any communications as are enabled by a technology are "premised" upon whichever

technique(s) that technology objectifies, though users are typically not explicitly aware of this stricture. Thus, communicating by typographic print, for instance, "premises" what's said and heard upon phonetic literacy, just as communicating by sound reproduction technology is "premised" upon transduction. *Ultimately, McLuhan held that media "premise" discursive agency* per se *upon the techniques they objectify. One must use whichever technique(s) a technology objectifies in order even just to begin to communicate by it. Thus, media "premise" what people can say by "premising" how anything can be said at all.*

As one or another medium achieves cultural currency as viable ways of "doing" communications, its "premise(s)" combines to form a culture's sensory and ideational "bias." For McLuhan, though, the West had reversed those aspirations of Empire which Innis feared, and now sought corporate membership in a "global village" rather than status as its Imperial Chief. And, to McLuhan's mind, electronic media was entirely to blame.

Clearly, then, McLuhan's basis reasoning about media and space situates a culture's dominant means of communication as primarily influential over the kinds of perception which it prefers. This is similar to Innis's basis reasoning, but McLuhan adds that media are therefore primarily influential over what is communicable by them and, thereby, influential over who uses them. On the face of it, this would seem merely an admission of the obvious. Indeed, what does it really mean to say that those who use print, for example, may only use print to communicate while they do so? However, to "premise" discourse upon a technical procedure is to prescribe discourse according to what such a procedure allows said, read or heard. Ultimately, to "premise" discourse is to *fetter* communicative agency to (the capacities of) technology. Thus, technology replaces ontology in communications and, in McLuhan's most famous words, the medium becomes "the message." (McLuhan 1964, 7). When one medium

in particular achieves dominance over a culture, communications — and their associated patterns of thought — become one-dimensional, "premised" entirely upon one among potentially any number of "ways of doing" communications.

Communications Systems, Transducibility and Sensory Privilege.

"Our conventional response to all media, namely that it is how they are used that counts, is the numb stance of the technological idiot," writes Marshall McLuhan. "The effects of technology do not occur at the level of opinions or concepts[,] but alter sense ratios or patterns of perception steadily and without any resistance" (McLuhan 1964, 19). Thus McLuhan articulates the prime postulate of his media phenomenology: each new medium introduces a unique set of sense ratios into human affairs, by "amplifying" only certain senses as it "amputates" only certain others. When these ratios achieve Innisian "dominance," the medium becomes "*socially* the message" (McLuhan 1964, 9; my italics). It influences how people perceive — and, thus, how they interact with and shape — the world.

In construing its sensory privileges, each medium ultimately instantiates what Judith Stamps calls a "communications system," which is to say, a limited inventory of communicable terms (Stamps 1995, 1). "Conversants have to employ these systems to capture whatever part of the world (trees, commodities, civilization) goes under discussion," according to Stamps. "Dialogue has to take place through a medium, and media always carry with them
certain sets of concepts or bounded ideas" (Stamps 1995, 12). Thus, in the final analysis, "technological developments" *fix* "dialogic boundaries" (Stamps 1995, 19).

One "communications system" which McLuhan often returned to throughout his career was that of typography, "the mechanized word."[38] To McLuhan's mind, the dominance of phonetic literacy which typography eventually secured throughout at

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[38] Paul Grosswiler, for example, uses the terms "Enlightenment" and "visual culture" interchangeably, in Paul Grosswiler, *Method is the Message: McLuhan and Marx.* (Montreal: Black Rose Books, 1990), 112. See, also, Michael Bull and Les Back, "Into Sound," *The Auditory Cultures Reader*, edited and with an introduction by Michael Bull and Les Back. (New York: Berg, 2003), pp. 1-24; Jean-Paul Thibaud, "The Sonic Composition of the City," *The Auditory Cultures Reader*, edited and with an introduction by Michael Bull and Les Back. (New York: Berg, 2003), pp. 329-342; Hillel Schwarz, "The Indefensible Ear: A History," *The Auditory Cultures Reader*, edited and with an introduction by Michael Bull and Les Back. (New York: Berg, 2003), pp. 487-502; Joachim Ernst Berendt, *The Third Ear: On Listening to the World.* (New York: Henry Holt, 1985); R. Murray Schafer, *Tuning the World* (New York: Alfred A. Knopf, 1977).; S. J. Smith, "Beyond Geography's Visible Worlds: A Cultural Politics of Music," *Progress in Human Geography* Issue 21 (1997): 502-529; Michel Foucault, "Panopticism," *Visual Culture: The Reader*, edited and with an introduction by Jessica Evans and Stuart Hall. (London: Sage, 1999), pp. 61-71; Judith Wilson, "One Way Or Another: Black Feminist Visual Theory," *The Feminism and Visual Culture Reader*, edited and with an introduction by Amelia Jones. (New York: Routledge, 2003): 22-25; and Rosemary Betterton, "Feminist Viewing: Viewing Feminism," *The Feminism and Visual Culture Reader*, edited and with an introduction by Amelia Jones. (New York: Routledge, 2003): 11-14. Contra McLuhan, however, many critics now develop his notion of the "sensory privileges" of media to cast film and celluloid pictography, for instance, as heavily rationalized "extensions" of literacy's visual bias. See, for instance, Guy Débord, *Society of the Spectacle.* (Detroit: Black and Red Books, 1977), particularly nos. 1-18; Chandra Talpade Mohanty, "Under Western Eyes: Feminist Scholarship and Colonial Discourses," *Third World Women and the Politics of Feminism*, eds. Chandra Talpade Mohanty, Ann Russo and Lourdes Torres. (Bloomington: Indiana University Press, 1991), pp. 51-80; Laura Mulvey, "Visual Pleasure and Narrative Cinema," *The Sexual Subject: A Screen Reader in Sexuality.* (New York: Routledge, 1992), pp. 22-34; Roland Barthes, "Rhetorics of the Image," *Visual Culture: The Reader*, edited and with an introduction by Jessica Evans and Stuart Hall (London: Sage, 1999): 33-40; and Nicholas Mirzoeff, *An Introduction to Visual Culture* (New York: Routledge, 1999).

least the literate echelons of Western society encouraged ocularcentrism as a social commonplace. This is an argument with which most current critics of Enlightenment practice and thought have little truck. The "communications system" of typography encourages those who chiefly communicate by it to relate to the world through massively reproduced visual code, commentators agree. As a result, the world becomes something which must be seen in like manner by many to be believed (i.e., as massively reproduced, or massively reproducible, sculptures of visual code). Once "typographability" achieves Innisian "dominance," as a primary marker of believable discursivity, typography itself *directs* human ingenuity and, in so doing, *characterizes* cultural production.

Transduction, too, constitutes a "communications system." It claims the world as that which must be spoken about and heard to be believed. However, in claiming this, transduction doesn't simply invert print. That is, transduction is not simply the negative instance of print's so-called "tyranny of the eye:" *What's said and heard by transduction is a surplus of consuming sound reproduction technology. Thus, transduction privileges only a voice and ear which are "amplified" by sound reproduction technology — which are made by, and which* are, *consuming sound reproduction technology*. Consequently, believable discursivity becomes a function of what's useful for consuming sound reproduction technology (i.e., a function of a thing's "transducibility"). What's said and heard by other means — such as, for instance, human oral/aural agency *per se* — becomes only a locus of incredulity.

Sensory Privilege Is Relative Monetary Privilege.

Those without access to sound reproduction technology are literally incomprehensible to the Network of Recording Practice. This means that a vast

amount of the world's population is excluded from communicating transduced musical information. As Timothy Taylor explains, "most of the people on the planet do not have access to a telephone, much less [to] a computer with an internet connection" (Taylor 2001, 6). How "most of the people on the planet" make and mark musical phenomena, then, which is to say, how they musically communicate, must also be excluded. Indeed, since access to transducers is proscribed for many because they simply cannot afford to buy a transducer, the sensory privileges which Recording Practice construes must be a function of relative monetary privilege to begin with.

As Mark Fenster and Thomas Swiss note, "any commercial recording.... is produced within an economic and industrial context" (Swiss and Fenster 2000, 225). So, too, must any supposedly "noncommercial" music recording be produced within an economic and industrial context. By making such a recording, one nevertheless makes a missing component for stereo systems; one nevertheless furthers the "technical linkage" of the sound reproduction industry with musical communications which the Network of Recording Practice concretizes as a creative, properly "cultural" activity. Indeed, it is the context in which Recording Practice happens — it is the capitalist mode of production *per se* — which determines who may or may not undertake any musical interpellations of transduction, not any essential property of transduction itself but that it *enables* exclusivity in communications.

This has overt musical ramifications. In mandating that its denizens exploit a certain variety of commodity in a certain manner to gain access and, in so doing, requiring that people exclude certain others whenever they communicate, the Network of Recording Practice dictates who can speak to who through it, and how they may do so. Record innovators and record receivers are made to depend upon this *streamlining* of their communications even just to achieve communicative agency, even just to garner

access to the only means available for making or hearing music recordings, because they simply must have recourse to sound reproduction technology to communicate. Thus, through Recording Practice, communicative agency itself becomes a commodity; those extortions and categorizations of persons according to class which capitalism entails obtains to the same degree, and in like manner, *as* Recording Practice.

Finally, then, Recording Practice names relations of production and consumption of sound reproduction technology only *skewed* towards musical purposes. The musical phenomena which results constitutes a product and locus of — and, yet, something entirely aside from — such relations. But transduction also adds a commodified *potential* to the repertoire of human sensations, as does any "amplification" or "amputation" of human sense organs manufactured under the auspices of turning a profit. As Karl Marx explains, senses are "cultivated or brought into being" by social tensions such that "man himself becomes [an] *object*" moulded by social pressure, namely, the pressure of commodity exchange and any contingent class conflicts (Marx and Engels 1968, 140-141; my italics). Walter Benjamin concurs. In his words, "the manner in which human sense perception is organized, the medium in which it is accomplished, is determined not only by nature but by historical circumstances as well" (Benjamin 1968, 222).

Recording Practice Connotes Relative Monetary Privilege.

Since transduction is the purview of only those with access to sound reproduction technology, Recording Practice mandates that its denizens configure themselves into a particular repertoire of sensations, each of which obtains only through consumption of a particular kind of commodity. That is, Recording Practice coerces its

denizens into consuming sound reproduction technology — and, therethrough, transduction — to experience certain sensations. Making and hearing music recordings thus becomes "leasing our ears and eyes and nerves.... to commercial interests" (McLuhan 1964, 75). This is not, as McLuhan argues, "*like* handing over.... speech to private corporation[s]" — *it is such capitulation* (McLuhan 1964, 75). After all, if one may speak or hear only by consuming a particular commodity first, such communications (such "contents") as result are each in the first instance commodities.

If record innovation is a matter of relative monetary privilege, record reception must also be a matter of such privilege. Both musical behaviors are equally predicated upon consumption of sound reproduction technology. Again, as Jacques Attali notes, "people must devote their time to producing the means to buy recordings" (Attali 1989, 101). They must also devote their time to producing the means to buy such technologies as make music recordings musically useful (i.e., stereo systems). While commentators such as Anahid Kassabian argue that the increasing prevalence of record reception throughout the West mandates adoption by all its citizens of a "ubiquitous subjectivity" — a way of being in the world which is forged through transduction and which, due to its genesis, is somehow ontologically specific to everyone — they overlook that such subjectivity is only achievable by satisfying a series of expenses in the first instance (Kassabian 2002, 131-142). What is signified by "ubiquitous subjectivity" must be a generally privileged and, crucially, a determinate position under conditions of capitalism, then. It can only be "ubiquitous" throughout a particular class of person, as is any position in communications which is forged through consumption of technology.

The same is true of contentions such as Joke Hermes's that "from time to time, *all of us* (some perhaps more than others) engage in virtually meaningless media use"

(Hermes 2000, 577). Such assertions neglect that media are by nature exclusive to those with relative monetary privilege. At the same time, then, such assertions ultimately neglect that exploiting media always connotes relative monetary privilege to begin with. Indeed, it is not only the self-styled intellectually élite who secede from Recording Practice (whatever their rationale). There are many who simply cannot afford but to secede, whose secession is an "operational and practical fact" of Recording Practice from the get go. "Innovation is for them not novelty but annihilation" (McLuhan 1964, 76). Transduction innovates them to death, to *inanimacy*, in those musical communications which only it enables.

The Network as a "Technocracy": Coveting Transduction.

The notion of Recording Practice as a "technocracy" thus rings true. As Neil Postman explains, a "technocracy" obtains when "those who cultivate the use of a new technology become an élite social group who are granted undeserved authority and prestige" (Postman 1992, 9). With regards to Recording Practice, such "undeserved authority and prestige" as Postman laments is the ability to achieve discursivity for musical purposes by transduction. It is garnered by providing people no recourse for cultivating the requisite technological, nor musical, competencies to achieve such communicative agency as Recording Practice *requires*, except by consuming commodities. Thereby, the Network of Recording Practice institutionalizes the "undeserved authority and prestige" of a certain kind of discursivity as a function of its agents's capacities to consume, which is a function of their income, or the storehouse of capital they have access to, from the first.

In the final analysis, then, Recording Practice constitutes a *measure* for coveting transduction, and each of those communicative agencies which transduction enables. It

covets transduction as a private property by assigning exchange values to each generation of sound reproduction technology as objectifies it for musical purposes. In so doing, it creates a "technocracy" of communications. Indeed, only those with access to sound reproduction technology and time enough for using it — only those who are capable of either satisfying or eluding satisfaction of a particular exchange value — may ever achieve such discursivity as Recording Practice enables.

SECTION TWO

Locating the Power (Button).

In its musically interpellated state — that is, *as* Recording Practice — transduction furnishes its users with the only means to constitute themselves as makers and hearers of music recordings. But Recording Practice is always *a priori* and external to whomever does this. It precedes its users as a collection of objects, each of which supersedes all humanity in terms of audile capacity. As such, whenever somebody makes or hears a music recording, they specify their Self as a "record innovator" or a "record receiver," just as they make themselves fundamentally likewise to any such innovator or receiver (i.e., as sound reproducers and, thus, consumers of sound reproduction technology). Indeed, even if makers and hearers of music recordings make and hear different organizations of sonic phenomenon, they nevertheless transduce.

A brief excursion into the realm of mixing should clarify why this matters. Each mix already hears for its receivers the data which a music recording stores, regardless of who exactly — or, even, whether or not anybody — actually hears it do so. Whenever

somebody makes a mix, they make a "content" of sound reproduction technology and, in so doing, an object. Whenever someone transduces such a "mix," they actualize a construction of their receiving Self in the guise of a mix. The mix of Miles Davis's "Nefertiti" (1967), for example, always hears the Miles Davis Quintet (*ca.* 1967) fixed in an arrangement which roughly approximates a concert-hall audience member's perspective to the Quintet during the middle 1960s. The Quintet's performance must always be heard as such, regardless of who — or, again, whether or not anybody — actually transduces the track; no matter when, where, in whose company, nor to what ends, the track is transduced.

Those who hear "Nefertiti" are furnished no means of altering this perspective. There is absolutely nothing they can do to change their circumstance in the labour of Recording Practice. In fact, once record innovation is complete, "record innovators" become but one among potentially any number of "record receivers" of their own music recordings. Even its innovators hear by "Nefertiti" only what and how its mix hears for them, and only if they consume sound reproduction technology in certain prescribed manners (i.e., for purposes of record reception).

Nevertheless, many commentators stubbornly insist that people always retain total control, if not a sort of metaphysical primacy over, sound reproduction technology. As Timothy Taylor proclaims, "we make machines for our own ends" (Taylor 2001, 14). Typically, Taylor deploys this dictum to refute any argument otherwise, and without further comment. He is not alone in doing this. Commentators of Recording Practice in general tend to take agency on faith, and they often use it as a foundation of analysis. They offer no explanation how people achieve this total agency, however, nor what exactly enables them to do so. Something called "agency" simply exists, commentators implicitly claim. It is a substance within each and every person

from womb to tomb. Thus, it is something which Recording Practice exemplifies creative use of.

This would be fine if it remained a metaphysical/spiritual assumption about what specifically constitutes humanity and its place in the world. As noted, though, this line of reasoning is *often* deployed by analysts of Recording Practice as a countermeasure against any claim that sound reproduction technology influences how people think and act while using sound reproduction technology, especially if that influence is thought to constitute stricture. By this logic, though, music recordings can have nothing whatever to do with how people think and act while they make or hear music recordings. Neither can the material properties of stereo systems limit record reception, nor can storage media, mixing boards, potentiometers or anything else which is *required* for Recording Practice to happen have efficacy in those communications which, when combined, they enable. While this seems patently absurd, it is indeed a typical interpretive tack. There seems to be something which is simply intolerable to commentators about the notion that media, and each of their object-forms, constitute stricture, which leads to an almost pathological refusal to acknowledge even the possibility of limitations in Recording Practice.

Timothy Taylor, for one, argues thus to dismiss the totality of Friedrich Kittler's theorizations of the media. To Kittler's mind:

> The more complicated the technology, the simpler, that is the more forgetful we can live. Records turn and turn until phonographic inscriptions inscribe themselves into brain physiology. We all know hits and rock songs by heart precisely because there is no reason to memorize them (Kittler 1999, 80-81).

Taylor deems such a notion egregiously "reductive," because it ignores whether or not people "*like* singing the hits," whether or not they "derive some pleasure from doing so."

But if anyone is guilty of oversight, it is Taylor. He, himself, leaves a whole host of crucial questions unanswered. What, *exactly*, constitutes "meaning" or "pleasure," for instance? How are the "complex and personal" varieties of "meaning" and "pleasure" which Taylor speaks of in the first instance made? How do listeners learn, or know, to make "meaning" or "pleasure" from *anything*, nevermind "complex" varieties, let alone from music recordings? For Taylor, such questions must be irrelevant. He simply offers his unanswered, if not unanswerable, questions in response, and moves on.

A determining connection between what enables a particular musical practice, and any "meaning" or "pleasure" which is thereby derived, must be maintained lest commentators slip into crude solipsism. That is, commentators of Recording Practice must be careful not to distort a notion of all humanity as that which exists at a critical distance from the world — the basis assumption of instrumental reason — into crude Sarnoffism. Returning to McLuhan's definition:

> In accepting an honorary degree from the University of Notre Dame a few years ago, General David Sarnoff made this statement: 'We are too prone to make technological instruments the scapegoats for sins of those who wield them. The products of modern science are not in themselves good or bad; it is the way they are used that determines their value.' That is the voice of the current somnambulism. Suppose we were to say, 'Apple pie is in itself neither good nor bad; it is the way it is used that determines its value.' Or, 'The smallpox virus is in itself neither good nor bad; it is the way it is used that determines its value.' Again, 'Firearms are in themselves neither good nor bad; it is the way they are used that determines their value.' That is, if the slugs reach the right people firearms are good. If the TV tube fires the right ammunition at the right people it is good. I am not being perverse. There is simply nothing in the Sarnoff statement that will bear scrutiny, *for it ignores the nature of the medium, of any and all media* (McLuhan 1964, 11-12; my italics).

Sarnoffism ultimately elides the base circumstance of Recording Practice, which is to say, it overlooks that Recording Practice is a series of musical interpellations of transduction. Sarnoffism thus ignores that Recording Practice depends upon transduction and, thus, that anything which is thereby made or derived is likewise dependent. Ultimately, Sarnoffism ignores that one may only speak or hear by Recording Practice however sound reproduction technology enables, that anything which is experiential by making and hearing music recordings is a product of operating a particular kind of technology.

Notwithstanding this, record receivers might still be understood to enact humanity's total control over sound reproduction technology each time they transduce, as Taylor argues they do. After all, it is record receivers who "put together.... personal play lists, skip some tracks, repeat others, turn up the volume to block out the external soundtrack or flip between the two" (Chambers 1990, 2). If receivers didn't have this agency, they simply couldn't shut their stereos off. Yet, while record receivers enjoy some agency to make certain determinations as to how a music recording should sound during and by their record receptions, and to either feed power to sound reproduction technology or let it gather dust in silence, they may do so only because such agency is furnished them as a capacity of the sound reproduction technologies they *must* exploit to ever receive a music recording in the first place.

Indeed, shutting power on or off can hardly be argued to secure sovereignty for all humanity over sound reproduction technology. The sole difference between George Orwell's fictional telescreen and a stereo, for example, is that we can shut the stereo on or off by depressing its power button or by "unplugging" it from its power source, and nobody eavesdrops on those musical communications which we thereby engage in or disengage from. But this is so only because the power button and the relative privacy of

use we enjoy constitute objective properties — "operational and practical facts," as it were — of sound reproduction technology itself. Such technology is simply not made to enable eavesdropping, nor to enforce continuous use.

Ultimately, by shutting power on or off, users of sound reproduction technology demonstrate that they depend upon such technology to demonstrate their independence from it in the first instance. "The problem is not how to get onto Recording Practice," then, but:

> How to get off. This is far more difficult than it might seem... You cannot opt out of the Network entirely (Shaviro 2003, 4-5).

The DJ as Freedom Fighter: Undoing Production-Consumption.

The figure of the DJ is often invoked against claims that sound reproduction technology bears some degree of efficacy in those musical communications which it enables. In fact, the DJ is now chiefly explained as an exemplary "refunctioner" (*Umfunktionieren*) of sound reproduction technology.[39] Or, more romantically, the DJ is described as a "revolutionizer" of musical practice in sum — a high-Modernist freedom fighter in a time of "prescriptive" technological stricture and rationalization (even if

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[39] The term and concept is borrowed from Walter Benjamin. Benjamin suggests that technology may be subjected to the same "alienation effect" which he argued Bertolt Brecht subjected his audiences to. Thereby, technology becomes a means for redressing institutionalized imbalances of power in the capitalized West. Benjamin elucidates this concept fully in Walter Benjamin, "The Author As Producer," *Walter Benjamin: Selected Writings, Volume 2, 1927-1934*, edited and with an introduction by Michael W. Jennings. (Cambridge: The Bellknap Press of Harvard University Press, 1999), 768-782.

commentators chiefly claim this as an achievement of Postmodernity). That is, according to these commentators, DJs "cut" and "scratch" a path for all humanity to follow through the Weberian "iron cage" of technologically enforced rationalization (i.e., so-called "technologization").[40] They "refunction" or "revolutionize" technologies of music consumption into "new *praxes* of production" (Potter 1998, 33). In so doing, they supposedly relieve their listeners of the hardship of consumption *per se*.

In Frank Boughton's and Bill Brewster's estimation, for instance, DJs exploit sound reproduction technology to enact "both production *and* consumption" simultaneously (Brewster and Boughton 2000, 14). Subsequently, in Shaviro's words, the DJ supposedly

> takes technology.... and turns it back against itself. [DJs] scramble linguistic and computer codes to create soundscape[s] of malice and foreboding. They unwind the skeins of digital control, feeding code back onto itself (Shaviro 2003, 45).

Or, as Paul D. Miller (a.k.a. DJ Spooky That Subliminal Kid) so grandly explains of his own cultural work:

> Trains, planes, automobiles, people, transnational corporations, monitor screens — large and small, human and non-human — all of these represent a seamless convergence of time and space in a world of compartmentalized

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[40] This opinion is notable in, among others, Russell A. Potter, "Not the Same: Race, Repetition and Difference in Hip-Hop and Dance Music" *Mapping the Beat: Popular Music and Contemporary Theory*, eds. Thomas Swiss, John Sloop and Andrew Herman. (Malden: Blackwell, 1998), pp. 31-46; Bill Brewster and Frank Boughton, *Last Night A DJ Saved My Life: The History of the Disc Jockey.* (New York: Verso, 2000); Sean Portnoy, "This Is Fascism? Raves and the Politics of Dancing," *Reading Rock and Roll: Authenticity, Appropriation, Aesthetics*, eds. Kevin J. H. Dettmar and William Richey. (New York: Columbia University Press, 1999), pp. 145-172.

> moments and discrete invisible interactions. Somehow it all just works. Frames per second, pixels per square inch, color depth resolution measured in the millions of subtle combinations possible on a monitor screen.... all of these media still need a designated driver.... Sound and image divorce and reconfigure before they reunite in the mix. The wheels turn, the discs spin, the hard drives flow with the recursive logic of the tyranny of the beat. The times change and the music evolves.... Navigate the metaphor, cut and paste it into here and now. *Commedia dell' arte* becomes digital, becomes total theatre, becomes electronic. Feel the frequencies.... It's the twenty-first century (Miller 2004, 23-28).

Yet the hope of Potter, Brewster and Boughton, Shaviro, and Miller, for instance, that production might always potentially occur at the same time as consumption — that is, that production and consumption are sometimes *indistinguishable* as categories of human agency — is not uniquely suited for explaining what DJs do. According to Steve Waksman, electric guitarists consume the symbol and technology "electric guitar," transduction, amplification, electric guitar strings, "Live" or "Concert" musical exchange — indeed, the gamut of technologies, techniques and musical interpellations of those techniques which an electric guitar objectifies — each time they strap on, say, a Telecaster and wail (Waksman 1999). In fact, simply by listening and adjusting, not just electric guitarists but *all* music performers produce and consume their performances at once. However, by this same logic, or by any other rationale which fails to posit a productive Prime Mover for consumption, they do neither. As Karl Marx explains, production itself :

> Is at the same time also consumption.... The individual who develops his faculties of production is also expending them, consuming them in the act of production, just as procreation is in its way a consumption of vital powers (Marx and Engels 1968, 7).

Production *enables* consumption, then. Otherwise, commentators must argue for devisal of new terms and concepts to account for those same commodity relations which the terms and concepts they refigure already adequately account for.

Simply put, DJs elucidate exactly how the Network of Recording Practice mandates consumption of technology in place of "vital powers." DJs have no choice but to constitute themselves within the Network of Recording Practice by exploiting the very technologies they supposedly "refunction" in so doing, and precisely as every other participant in Recording Practice must: *to assume the position of a "record innovator" or a "record receiver" therein.*

What DJs *uniquely* demonstrate is that sound production itself is no longer necessary to make and/or mark a musical communication. Even then, DJs depend upon sound production's *a priori* situation within the Real of the Network of Recording Practice to accomplish this. That is, they depend upon Recording Practice's situation of sound production as unrepresentable and, thus, impossible to en/decode, except as an always present and decidedly Lacanian Other of attainable experience. Thus, what DJs *ultimately* demonstrate is that, once inside the Network of Recording Practice, "one is that much more hopelessly surrendered" (Kittler and Rickels 1992, 67). In this case, "one is that much more hopelessly surrendered" to the social institution of the sound reproduction medium; and, thereby, to the social totality which facilitates, perpetuates and profits, by such an institution.

Even DJ Spooky, that self-styled visionary of the "rhythm science" vanguard, "can't think of a single sound" he hasn't heard or couldn't make. Musical ideation must eventually boil down to a matter of "transducibility" in the Network of Recording Practice, to a matter of "music's" suitability to immediate circumstance. Everything in Recording Practice is only there because of its "transducibility." "Numbers and

figures" are all that is perceptible to — and, thus, all that is operational within — the Network of Recording Practice.

The Computer: Impossible Refunctioning.

The personal computer is also treated deterministically by many commentators, as a technology which "refunctions" musical practice in particular, and society in general, each time it operates. Constructing and deploying a kind of techno-shamanic narrative of computer based musical practice, commentators interpellate the "hacking" and "home-brew" narratives of Do It Yourself computer making into their interpretations of the computer's current musical and social situations. For instance, copyright infringement by downloading songs and "ripping" CDs is variously lauded or decried by commentators as though musical practice *per se* were revolutionized or degraded each time a song is downloaded, rather than that downloaders do nothing more dangerous than disagree with the social convention of copyright law.[11] Thereby, a record innovator's loss of potential profits (i.e., a threat to capitalist musical exchange) is shaped by commentators into a metonym for all musical practice in ascension or decline.

The possibility that Recording Practice has expanded to accommodate the so-called "internet revolution" is simply not all that much entertained these days. But

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[11] For a representative sample of current commentary about the computer's current musical situation see, for instance, Roy Shuker, *Understanding Popular Music.* (New York: Routledge, 2001), pp. 51-66; Larry Starr and Christopher Waterman, *American Popular Music From Minstrelsy to MTV* (New York: Oxford University Press, 2003), pp. 445-451; and Reebee Garofolo, *Rockin' Out: Popular Music in the USA.* (New Jersey: Prentice Hall, 2002), pp. 412-419.

downloaders *must* have access to the requisite computer technologies to download and transduce in the first instance, even if what they do is judged "illegal." They must also have access to a computer to store and hear what they download, and to the requisite technology should they "rip" CD-R copies of what they store on their computers. The computer is a sound reproduction technology like any other, after all. Furthermore, as Steven Shaviro concedes, most record receivers who do their musical labour primarily through computers:

> *Always* pay full price for their internet connections, as well as for the music's physical media: the computer equipment [they] use, the hard drive onto which [they] download the files, and the CD-R discs onto which [they] subsequently burn them (Shaviro 2003, 57).

To participate in the Network of Recording Practice is always to enact complicity with the social totality which enables and profits by it. *There can be no "refunctioning" of sound reproduction technology because such technology is only ever made to enable transducing in any musical manner.* Indeed, simply by aspiring to the status of a "musician," or by treating what they hear as genuinely "musical," record innovators and record receivers cast their lot with that social totality which empowers only certain people to define and make "music" authoritatively. That is, they agree to the social convention of "music" and, thereby, with that social totality which renders orthodox whatever it is that "music" historically names.

The same can be said for how people treat technology, and what they aim for by using it. One must consider sound reproduction technology a genuinely "musical" apparatus for Recording Practice to happen. In so doing, one casts one's lot with that social totality which musically interpellates sound reproduction technology, and which profits through such interpellation. Any other exploitation — which is to say, any

"nonmusical" use — of such technology is not a musical interpellation of transduction. Thus, it qualifies neither as an enactment, nor as a product, of the Network of Recording Practice.

SECTION THREE

The Sound Reproduction Medium as an Institution.

The sound reproduction medium thus constitutes a social institution. It achieved Innisian "dominance" the second an industry coalesced around it to ensure socially acceptable production and distribution of its object-forms. Recording Practice musically interpellates this institution as a relation between objects of a particular kind (i.e., sound reproduction technology) and a means of making them relate (i.e., Recording Practice). Those who undertake Recording Practice thus do so in accordance with the sound reproduction medium *as a constituent institution of the capitalist mode of production.* Indeed whenever someone makes or receives a music recording, they enact complicity with that social totality which facilitates, perpetuates and profits by such an institution, and which secures for it Innisian "dominance," no matter which "contents" they make or mark in the process.

It is the sound reproduction medium *per se* to which record innovators and record receivers conform, then, not the rather Orwellian vision of media fallen into wrong, totalitarian hands. In fact, instead of Orwell's powerful metaphor of a Big Brother, Recording Practice demands consideration of Aldous Huxley's rather more bleak vision of the future. As Neil Postman explains:

> What Orwell feared were those who would ban books. What Huxley feared was that there would be no reason to ban a book, for there would be no one who wanted to read one. Orwell feared those who would deprive us of information. Huxley feared those who would give us so much that we would be reduced to passivity and egoism. Orwell feared that truth would be concealed from us. Huxley feared that the truth would be drowned in a sea of irrelevance. Orwell feared that we would become a captive culture. Huxley feared we would become a trivial culture, preoccupied with some equivalent of the feelies, the orgy porgy, and the centrifugal bumblepuppy.... In *1984*, people are controlled by inflicting pain. In *Brave New World*, they are controlled by *inflicting* pleasure (Postman 1985, *vii-viii;* my italics).

Again, as Kittler notes, "technologically possible manipulations determine what.... can become discourse" (Kittler 1999, 232). But technologically possible manipulations also determine *who* may become discursive, and how, because they are, in the first instance, a function of the material properties of technology to begin with. Ultimately, then, users of communications machines are not socialized by the "contents" they make or mark, except, perhaps, in the very last instance. Before this, they are socialized by learning to exploit the object-forms of media for communicative purposes, which guides them through the "content" making and marking process for the rest of their natural lives. As McLuhan explains of phonetic literacy, for example,

> it is perhaps useful to consider that any form of communication written, spoken, or gestured, has its own aesthetic mode, and that this mode is part of what is said. Any kind of communication has a great effect on what you decide to say if only because it selects the audience to whom you can say it.... With the invention of the alphabet the voice was translated to a visual medium with the consequent loss of most of its qualities and effects. But its range in time and space was thus given enormous extension. At the same time that the distance from the sender of the recipient of a message was extended, the number of those

> able to decipher the message was decreased. Writing, in other words, was a political revolution. *It changed the nature of social communication and control* (McLuhan 1951, 189; my emphasis).

The Technological/Technical Bias of the Network of Recording Practice.

Recording Practice requires that all manner of communication and ideation as occurs for and by it be, respectively, (i) manners of transducing and (ii) manners of considering transduction musically useful. In requiring this, Recording Practice renders musical communications *per se* a mode of transducing. The Network of Recording Practice simply concretizes this mandate as a condition, or a basic principle, of *all* musical exchanges as happen by it. As the Network of Recording Practice is accepted by people, so, too, are the two basic "conditions" of its use.

The "bias" of the Network of Recording Practice can be neither temporal nor spatial, then. These are, after all, categories of *human* apperception. The "bias" of the Network of Recording Practice is, rather, "technological," in Marcuse's sense, or "technical," in Ellul's (Marcuse 1964; Ellul 1964). All that can be said or heard by Recording Practice is what can be produced and perceived by sound reproduction technology. The "world" which is accessible by the Network of Recording Practice is thus all that can be transduced, which is to say, all that "works" given immediate circumstances. As Herbert Marcuse explains:

> Within the established system.... aspirations are translated into administrated cultural activities.... If goals are to be satisfied without an irreconcilable conflict with the requirements of the market economy, they must be satisfied within the framework of commerce and profit (Marcuse 1955, *xxiii*).

Only this way is the Network of Recording Practice successfully rendered something other than an "aggravation" to "the very base of advanced industrial society, namely, the gradual undermining of capitalist enterprise in the course of automation" (Marcuse 1955, *xxiv*).

Obviously, this is by no means an innocent development. As something which bears a "technological" or "technical" bias, Recording Practice extracts the need for human specificity in musical communications altogether. It renders people useful only as programmers of sound reproduction technology. The material presence of people — their eyes, ears, mouth and nerves — are not required by the Network. People are, in other words, rendered "obsolete" (McLuhan 1975, 74; McLuhan 1977, 175). Indeed, more than just a technology which *enables* sublation of human specificity in musical communications to an unprecedented degree, the Network of Recording Practice *requires* such sublation before those communications which it enables may happen.

This said, because Recording Practice arose and continues to operate under conditions of capitalism, the subjection of communicative agency to the capacities of a particular kind of commodity must also be a ceding of communications to the capitalist mode of production. Thus, it is possible that "a technologically literate public *might* reject technological determinism and accept the current social science argument that technology is malleable and subject to social control," as Thomas Hughes hopes they will (Hughes 2004, 173). But this would only further distance them from any accurate understanding of what, for my purposes, sound reproduction technology has been made to achieve for music and culture, namely, the aggressive deletion of human specificity in musical communications. Indeed, "the endangered state of the natural environment, the deteriorating human-built world, and the threat of technology out of control" which Hughes sees to characterize Western capitalist modernity does not simply "reflect

people's values and their resigning themselves to determinism" (Hughes 2004, 173). More importantly, it reflects their resignation to determination by immediate circumstance *per se*.

Ultimately, the social utility of transduction has *already* been judged by preceding generations. It was found not only useful but, for many, profitable. People get what they want by the Network of Recording Practice. Some like "singing the hits," as it were. Others like turning such "pleasure" into a potential for profit making. For these and other reasons, mostly having to do with the the ability of the Network of Recording Practice to generate "pleasure" and "wealth" for its denizens, people selfishly invest in the Network by innovating, selling and buying music recordings and the technologies which are required to make music recordings musically useful. This can only be the case if the Network of Recording Practice is now, and always was, no more nor less than a part-and-parcel of the capitalist mode of production. In which case, anything which one says or does by the Network must also be a part-and-parcel of that same social project.

In the final analysis, the Network of Recording Practice cannot deliver its denizens from present circumstance. It is, in fact, a fail-safe against such delivery. It purposely fails to deliver supercession of so-called "art" — aesthetic communications — from division of labour, and "art, insofar as it is negatively affected by the division of labour, must be superseded" (Mészaros 1970, 212). That there even exists a record industry, no matter its current disarray, demonstrates how successful this planned failure has been.

Restraints Upon Communications — Restraints Upon the Self: Coercion.

Moreover, if communication is one way in which people constitute their Selfs, any restraint upon procedures of communication must be collaterally restrictive of how they may do this. In fact, such restrictions *limit*, or constitute *stricture* over, what of the Self may be communicated into and as part of the object world. If the Self cannot be fully expressed in relation to the object world nor as part of it, transcendent ideation (i.e., so-called "objectivity") becomes an operational pipe dream. Consequently, subversion of or, even, quarrel with immediate circumstance becomes operationally impossible, both in concept and in practice. Objectivity — that is, for my purposes, *attempted* consideration of more than one's own condition — is thereby rendered a once valued human (not to mention humanitarian) potential made increasingly impossible to entertain as even a concept. Instead, solipsism becomes the norm.

Indeed, the sound reproduction medium "ha[s] no need to secure our spiritual complicity as long as we do more or less what [it] demands," as Terry Eagleton contends (Eagleton 1994, 134). Simply by undertaking Recording Practice "we do more or less" what the sound reproduction medium demands of us anyway, even if we consider ourselves to enact subversion or achieve more or less empowerment in so doing. We undertake Recording Practice and all we do is consume those generations of technology which embody it. Everything else called "Recording Practice" names only a surplus, or a perhaps valued though certainly unnecessary product, of this one act.

In the final analysis, then, the sound reproduction medium constitutes an institution of social coercion. It is, in Jeffrey Alexander's words, "a product of joint activity and association, the effect of which is to 'fix,' to 'institute' outside us certain initially subjective and individual ways of acting and judging" (Alexander 1995, 259). As noted, the procedures which the sound reproduction medium requires its users follow

enforce conformity by prescribing how communications may only ever happen. In turn, this "premising" of communications encourages a circumstance wherein only particular configurations of data, and particular modes of configuring such data, are authorized to enter the chains of human discourse (i.e., prototypes). Anything which is not thereby authorized is muted, as it were. It becomes not so much sublime, nor Real, as something specifically human which is proscribed from human communications — something "vital" rendered otherwise.

Rebellious "Contents."

Still, every institution generates its rebels. With regards to the Network of Recording Practice, these rebels are, for instance, the "unruly" upstarts attacked by the P.M.R.C. (a.k.a., The Parents' Music Resource Center), which is to say, the 2 Live Crews, the Ozzy Osbornes, and the Marilyn Mansons of the world. As Roy Shuker explains:

> The PMRC established a *Rock Music Report*, condemning what they claimed to be the five major themes in [Popular] music: rebellion, substance abuse, sexual promiscuity and perversion, violence-nihilism, and the occult. They started a highly organized letter writing campaign, and began arguing for the implementation of a ratings system for records, similar to that used in the cinema. The PMRC also sent copies of lyrics of songs they saw as objectionable to program directors at radio and television stations, to be screened for 'offensive materials,' and pressed record companies to reassess the contracts of artists who featured violence, substance abuse, or explicit sexuality in their recorded work (Shuker 2001, 225).

It seems that the P.M.R.C. missed the point, here. However, so did Popular Music's many defenders at the time. While the likes of Marilyn Manson upset certain

conventions of "content" by their recordings, they conform to immediate circumstance as does any record innovator by absorbing their musical fictions into the sound reproduction medium in the first instance. (This may, in fact, go a long way in explaining why it is that the capitalist mode of production has yet to be overturned by any record innovation, even if "content" may be, and often is, a locus of moral panic.) Whatever record innovators say is possible only if it is utterable within the Network of Recording Practice to begin with. Therefore, every communication as is made by Recording Practice is anticipated by the Network of Recording Practice as an operational possibility from the first. In upsetting conventions of "content," the likes of Marilyn Manson only render conventional their antagonisms of convention — as yet another multiple instance of sound reproduction technology geared towards some musical purpose; as yet another kind of consumable *object* (i.e., a music recording).

Indeed, no matter what they sound like, Manson and his ilk follow the by now time-honoured tradition of sculpting symbols of sonic phenomena (i.e., "storage-state" data) into properly "musical" arrangements, and of producing objects which store such sculptures (i.e., music recordings). Record receivers are free to consider these objects "shocking," "silly," "ridiculous" or what-have-you, or to neglect them and let them gather dust as the inherently silent objects they are.

If anything, that Manson's music recordings are heard betrays his and his listeners' allegiances to the social convention of a sound reproduction medium, and to the social totality which that medium venerates as one of its preeminent or "dominant" institutions of communication. *Any* record innovator's musical production simply cannot exist but by transduction and, thus, by consuming sound reproduction technology. And this is precisely what the Network of Recording Practice requires of communications — no more, no less.

The (Ultimate) "Message" of the Institution of Recording Practice.

The "message" of the Network of Recording Practice is one of stricture and deterrence. This is to say that the Network of Recording Practice is clearly "technologically determined," and that the stricture of transduction — its "message" — enables humanity only a finite set of potential avenues for communicating, each of which at some point requires a certain expenditure of money given the current capitalist context of its manufacture and distribution. The distribution of those communicative agencies which the Network of Recording Practice concretizes is, then, "organization of scarcity" (Marcuse 1955, 36). If scarcity of this sort is accepted by people, as it has overwhelmingly been, Recording Practice can be counted on as a lifelong investment. So, too, can compliance be counted on, at least in musical communications.

Media such as sound reproduction, and cultural interpellations of such media (i.e., the Network of Recording Practice), constitute *measures* for structuring, facilitating and, thereby, for leveling operational censorship over communications. *This is not a truism so much as it is an acknowledgment of stricture: not just anything can be said or heard by sound reproduction technology, nor can people participate in Recording Practice but by consuming sound reproduction technology in the first instance.* In which case, record innovators and record receivers are always limited to arranging only certain prescribed, already socially venerated terms (i.e., to undertaking specifically "musical" uses of sound reproduction technology). Even then, they must consume two kinds of commodity before and while they do this. First, they must consume sound reproduction technology. After, they must consume what sound reproduction technology objectifies, namely, the perceptual and communicative potential(s) of transduction.

Ultimately, when all is said and done, the Network of Recording Practice constitutes an *achievement*, or a *production*, of the sound reproduction industry. Now, it is

simply a constituent of that industry, which operates under the guise of "musical" communications. As such, on a broader level, Recording Practice constitutes a constituent practice of the social project of capitalist production in general, of the capitalist mode of production *per se*. It was forged from the social fabric which capitalism wove during the last half of the nineteenth century, and it continues to operate as a part-and-parcel of capitalist production today.

Indeed, the practice of making and hearing music recordings renders people *inadequate* to achieve a particular kind of communication, except by having recourse to a particular kind of communications machine. To do this, people must consume, namely, sound reproduction technology and its primary agency, which is transduction. This is the very thing that such technology is presently manufactured and marketed for, no matter the "contents" which result. As long as Recording Practice happens, then, such consumption will continue to occupy a *constitutive* position in musical communications. So, too, will the industry and the social totality which perpetuates and profits by the various restrictions that the sound reproduction medium — given its present, Innisian "dominance" — continues to wield over its users.

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